

THE INTERPLAY BETWEEN ATOMIC ELECTRONS AND THE NUCLEUS LASERS, SPECTROSCOPY

EJC2021

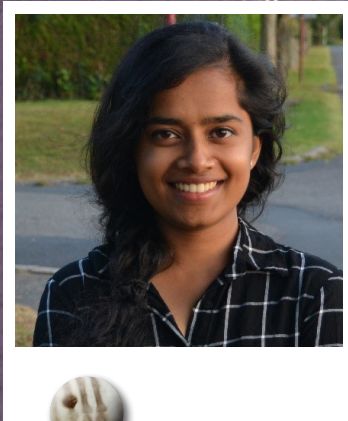


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THE INTERPLAY BETWEEN ATOMIC ELECTRONS AND THE NUCLEUS TRAPS, LASERS, SPECTROSCOPY



Anjali Ajayakumar

I am a first year PhD student at GANIL (Grand Accélérateur National d'Ions Lourds), Caen. I am one of the Early stage researchers from the LISA (Laser Ionization and Spectroscopy of Actinides) network, which is a Marie Skłodowska-Curie Action (MSCA) Innovative Training Network. My topic of interest is 'In-gas-jet laser spectroscopy optimization for high resolution measurement of actinides'. My research studies are part of a project under construction, the S3-LEB (Super Separator Spectrometer-Low Energy Branch) at GANIL. My work involves development of a tunable CW diode pumped Ti:sa laser system to perform high resolution spectroscopy on actinides and optimization of the gas cell to gain sensitivity for the shortest actinide isotopes. I will participate to the offline commissioning of S3-LEB and high resolution spectroscopy measurements.

GANIL, Caen, France

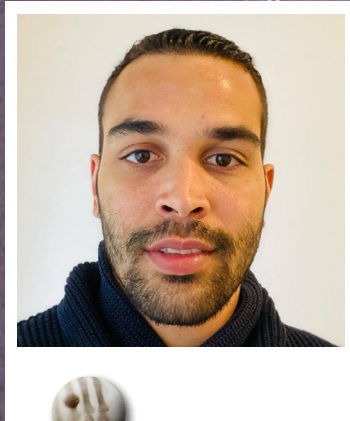
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Adrien Andoche

I am a first year PhD student at the Institute of Physics and Chemistry of Materials of Strasbourg (IPCMS), Department of Non linear Optics (DON), in the Q-DYNO team (Quantum Dynamics of Nano-Objects).

I am working on theoretical and computational study of electron capture for metrology. More precisely in the relativistic density functional theory framework, to generate the electronic energies and the wave functions of the bound and continuum states for several radionuclides. This project will be done in collaboration with National Henri Becquerel Laboratory (LNHB) of CEA Saclay and the consortium (Prima-LTD).

In my free time I like to go outdoors, to find inspiration in the beauty of nature.

IPCMS, University of Strasbourg, France

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Luisa Arcila

I am a 3rd year PhD student at the Van Swinderen Institute (VSI) in the University of Groningen - Netherlands. My PhD topic is to develop a chemical isobaric separation technique to measure with high precision the masses of short-lived nuclei far away from the stability region. With high-precision mass measurements we will provide important data for nuclear physics and nuclear astrophysics. I have studied the chemical interactions of indium, cadmium, silver and tin ions with different gases using a commercial quadrupole Time-of-flight mass spectrometer. I have been working as well in the commissioning of the setup of Chemical Isobaric SEparation (CISE), as well as the study of the radiofrequency extraction carpet.

Besides my research, I enjoy traveling, climbing, playing computer games, and spending time with my family and friends.

Van Swinderen Institute, the University of Groningen, Netherlands

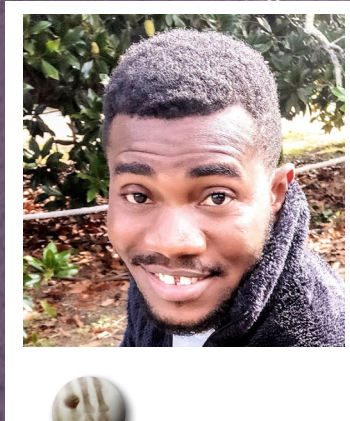
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Emmanuel Atukpor

I will be commencing the third year of my Ph.D. at the Centre d'Etudes Nucléaires de Bordeaux-Gradignan (CENBG), France. During my master's programme I focused on the application of nuclear Physics to radiotherapy where I carried out activities at INFN (Catania) for proton therapy, GANIL (Caen) for X-ray pre-clinical radiotherapy, and LPC (Caen) for Carbon therapy studies. In my Ph.D., I am exploring a slightly different domain, studying detectors for online detection of particles after the interaction of high power lasers with high repetition rates. My thesis involves experimental tests at laser facilities such as at GSI (Darmstadt), LULI (Paris), CELIA (Bordeaux) and possibly APOLLON (Paris).

Outside scientific research, I enjoy time with family, I love drawing and painting, reading books, and doing sports.

Centre d'Etudes Nucléaires de Bordeaux-Gradignan (CENBG), France

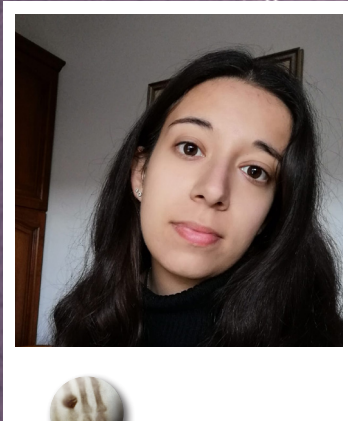
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Silvia Bara

I'm about to finish my first year of PhD at KU Leuven. I graduated at the University of Camerino in Italy and joined the decay spectroscopy groups of IKS (Institut voor Kern- en Stralingsfysica) right afterwards. My project is focused on the study of the β -delayed fission (β DF) in neutron rich isotopes. The first attempt will be to study β DF with neutron rich isotopes of Ac and Fr, produced at the ISOLDE facility. During a second phase instead, the idea is to go to neutron rich isotopes in the uranium region, like Pa, but in this case the facility still needs to be determined, as Pa ion beams have not been observed at ISOLDE yet.

I talk about food most of the time, but don't worry, it's normal because I'm Italian. And of course, one activity I really enjoy doing in my free time is cooking and baking.

KU Leuven, Heverlee, Belgium

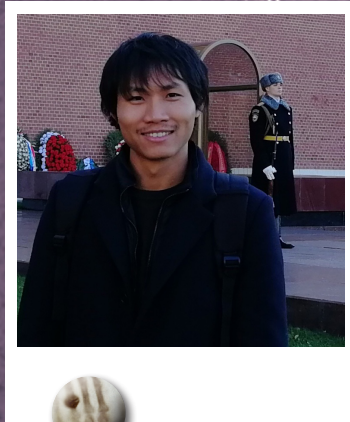
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Rikel Chakma

I come from Bangladesh. I did my schooling in Kolkata and, later on, my undergraduate studies in Bangalore, India. Thereafter, I came to France to pursue a master's degree in physics called M1 General Physics (an International Master Program) at Université Paris-Saclay. Furthermore, I am one of the students of the very first batch of this program, and I feel proud about it. In my M2, I followed the NPAC program at the same university. During my master's studies, I became interested in Nuclear Physics, which led me to do a Ph.D. in experimental nuclear physics. Now, I am a postdoctoral researcher at GANIL. One part of my research activity involves the commissioning of the SIRIUS detection setup. SIRIUS is a state-of-art focal plane detection system to be installed at the focal plane of S3 in GANIL to perform decay spectroscopic studies of heavy and superheavy nuclei. I also participate in some experiments that take place at GANIL whenever possible. My other activity will involve analyzing the data of an experiment to be performed in Argonne National Laboratory, USA very soon.

GANIL, Caen, France

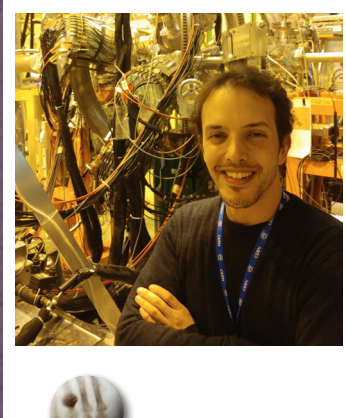
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Achment Chalil

I have recently obtained my PhD focusing on nuclear structure aspects of medium-heavy nuclei and currently I am a post-doctoral fellow at CEA Paris-Saclay. My present research focuses on the simulation part of the STEREO experiment, where accurate description of nuclear de-excitation and their structural aspects is essential input.

CEA Paris-Saclay, France

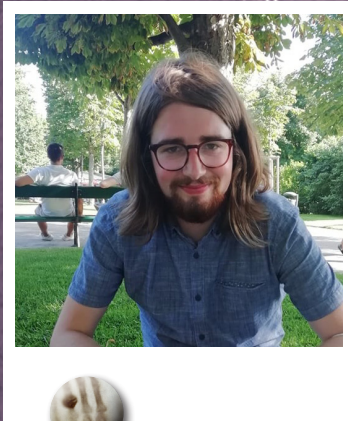
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Arno Claessens

I am a third year PhD student at the institute for nuclear and radiation physics of KU Leuven. Here, I work on the In-Gas-Jet laser ionization and spectroscopy technique for medium-heavy and heavy elements. Recent efforts in Leuven have been focused primarily on preparing this technique for the study of the low-lying ^{229}Th isomer. The isomer has never been found in a $1+$ charge state and it is not understood why. The goal of the project will be to look for this isomer and resolve the isomeric state from the ground state using laser ionization of Th^+ .

When I am not in the lab, I enjoy travelling, visiting museums and historic sites and exploring Belgium's rich beer culture. If weather or time does not allow these things, I often play videogames or watch documentaries.

KU Leuven, Belgium

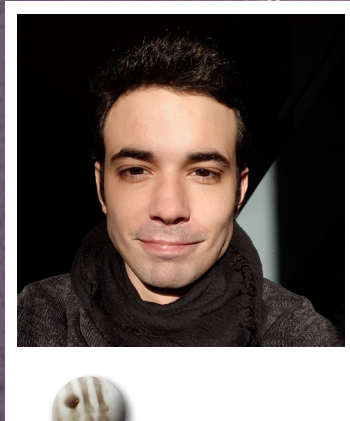
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Raphaël Crosa-Rossa

I just started the second year of my PhD at the Van Swinderen Institute in the university of Groningen, in the Netherlands. This PhD is part of a large European project called LISA, which stands for Laser Ionization and Spectroscopy of the Actinides. Together with 14 other PhD students spread in several European countries, we aim to study the actinides to enhance our knowledge of the atomic structure and produce practical applications for society in the fields of targeted cancer therapy and radioecology. My contribution to the project is purely theoretical: I calculate ionization potentials, electron affinities, hyperfine structure parameters and other fundamental properties of interest by means of the coupled cluster approach, one of the most sophisticated state of the art ab initio methods to treat such systems.

In my spare time, I love to share quality time with my friends around a drink, reading books about human sciences, and playing the piano, among others !

University of Groningen, The Netherlands

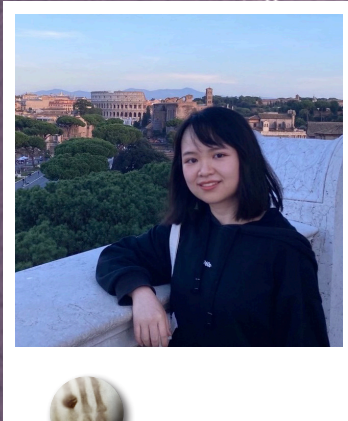
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Wenling Dong

I am about to start my second year as a PhD student at IJCLab, Orsay, France. I am working in TULIP project which is a collaboration between GANIL and IJCLab. TULIP stands for Target Ion Sources for Short-Lived Ion Production. The aim of my current work is to optimize the production of neutron deficient residuals using fusion evaporation reactions.

I like data analyses and simulation.

Apart from physics, I am very interested in traveling and watching movies.

IJCLab, Orsay, France

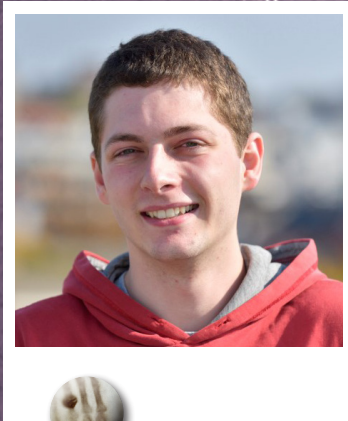
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Jonas Fischer

I'm a PhD student at the institute of nuclear Physics in Darmstadt. I'm working on the PUMA project, where I'm part of a team developing a Penning trap for the long-term storage and transport of antiprotons and electrons at CERN.

Institute of nuclear Physics, Darmstadt, Germany

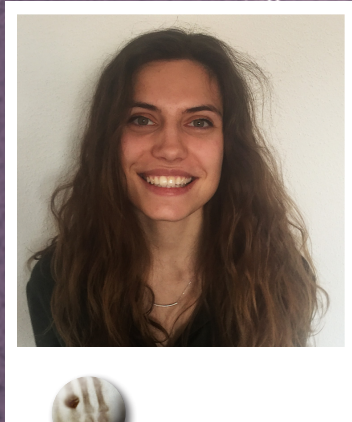


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Margaux Forge

I'm about to enter my 2nd year of PhD thesis in Nuclear Physics at the Institute Pluridisciplinaire Hubert Curien (IPHC) in Strasbourg (France). The main field of my research is the study of isomeric states in superheavy nuclei by using the GABRIELA array positioned at the focal plane of the SHELS separator at the FLNR, Dubna (Russia). I'm especially interested in the nuclear structure of ^{254}No nuclei ($Z = 102$) by using spectroscopic information extracted from alpha, gamma and electron correlations in order to resolve the disagreement about its long and short-lived-K-Isomers.

Besides my research, I'm an avid mountain hiker and climber willing to be close to nature.

IPHC, University of Strasbourg, France

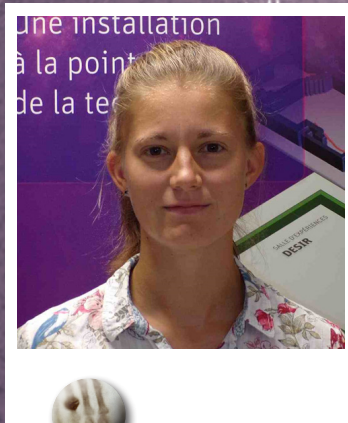
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Chloé Fougères

Second year Ph.D. student at the National Large Heavy Ion Accelerator GANIL in Caen, I am mainly interested in nuclear astrophysics. My work aims at understanding the cosmic abundance of the radioelement ^{22}Na , a key observable for the nuclear activity during novae outbursts. Novae are binary stellar sites where explosive hydrogen burning happens with models still under discussion. Through an experiment set-up at GANIL, I am bringing new nuclear inputs for novae physics and γ -ray observation campaigns to predict the amount of emitted ^{22}Na . The experimental study led to lifetime measurements in $^{23}\text{Mg}^*$ states with the highly resolved γ -array AGATA coupled with the large spectrometer VAMOS and the silicon telescopes SPIDER.

Beyond times spent in experimental areas and data analysis, the Brittany Sea fills my days with wonder, always bounded to my family, music, and literature.

GANIL, Caen, France

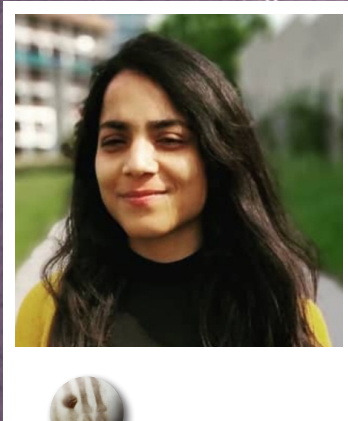
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Nishu Goyal

Hello, I am Nishu PhD student in GANIL, Caen. I started my academic journey here in France from Nantes, IMT Atlantique where I did my master in Sustainable Nuclear Engineering and Application and ended up getting my diploma in Nuclei, atoms and collision domain from University of Caen. I am currently working in MORA collaboration at GANIL focusing on the searches of new sources of CP violation. I am contributing to the project in the Development of the Detection setup dedicated to study beta decay in trapped and laser oriented nuclei.

Apart from being a physics admirer, I adore being close to nature, meeting new interesting people and practicing yoga.

GANIL, Caen, France

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Yangyang Guo

I am a PhD student at Van Swinderen Institute in the University of Groningen. My research focus on the high accuracy calculation of atomic and molecular properties of heavy and superheavy elements, and the uncertainty estimation from several different main sources. The calculation is performed with the relativistic coupled cluster approach with single, double, and perturbative triple excitations (DC-CCSD(T)). Major part of this research was carried out in collaboration with experimental groups, where we provide theoretical support for the challenging measurements on these atoms.

To estimate the accuracy of our predictions, we investigated various computational parameters (number of correlated electrons, choice of the Hamiltonian, basis set, etc.), and performed calculations for the lighter homologues. Our final values are obtained using the 4-component Dirac Hamiltonian, all electrons are correlated, and the results are extrapolated to the complete basis set limit and corrected for the Breit and QED contributions.

Beside the PhD project, I like sports (running, playing badminton, cycling), playing card games. and enjoying the delicious with my friends.

University of Groningen, The Netherlands

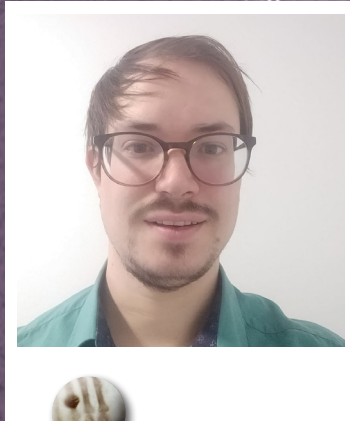
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Guillaume Hafner

I am Guillaume from Germany and I am currently finishing my PhD in a joint program between the University Paris-Saclay and the University of Cologne. I am working at IJCLab in Orsay and my research focuses on the structure of exotic, neutron-rich nuclei around the doubly magic ^{132}Sn using gamma-ray spectroscopy. I have participated and analyzed experiments performed at the ALTO facility of IJCLab and at the RIBF of the RIKEN Nishina Center in Japan. Besides nuclear physics, I also have a passion for medical physics and programming.

I love traveling, photography and swimming. I also enjoy playing the piano, outdoor activities like hiking or cycling and meditation.

University Paris-Saclay, IJCLab, Orsay, France

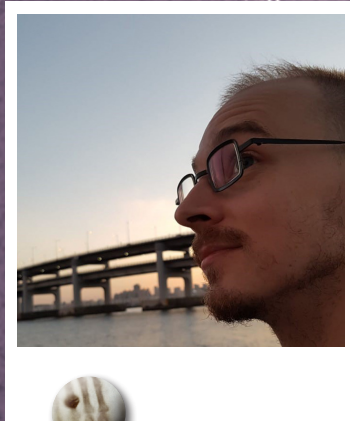
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Jean-Gabriel Hartmann

I am starting my second year of PhD at the Strasbourg Institute of Physics and Chemistry of Materials (IPCMS), within the Quantum Dynamics of Nano-objects (QDYNO) group. This project lies within the broader research area “quantum nanodevices”, with the overall goal of “engineering better qubits”. It forms part of a larger collaboration with experimentalists in the Ruben Group at the Karlsruhe Institute of Technology.

We are interested in quantum information processing (QIP) using the higher dimensional, qudit, states obtained from the hyperfine structure of lanthanide group atoms embedded within single molecule magnet (SMM) systems. These SMMs are promising candidates for quantum computing due to the large addressable Hilbert space of certain lanthanide atoms, coupled with the strong environmental isolation provided by the molecules. In this work, my focus is on the theoretical modelling and design of these systems, to further develop their QIP capabilities for applications in quantum computing.

In my free time, I enjoy cycling, cooking and gaming with friends.

IPCMS, University of Strasbourg, France

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Paul-Antoine Hervieux

I am currently professor of physics at the University of Strasbourg and researcher at the Institute of Physics and Chemistry of Materials (IPCMS). My main research interests are the investigation of: (i) nuclear spin qubits for quantum information processing; (ii) atomic and molecular collision processes; (iii) and quantum effects using classical stochastic analogues. At the same time, in recent years, I have been developing a theoretical activity around the GBAR experiment at CERN, the aim of which being to measure the action of gravity on antimatter.

My main motivation to attend this school is to learn more about nuclear effects in atomic transitions.

IPMCS Unistra, Strasbourg, France

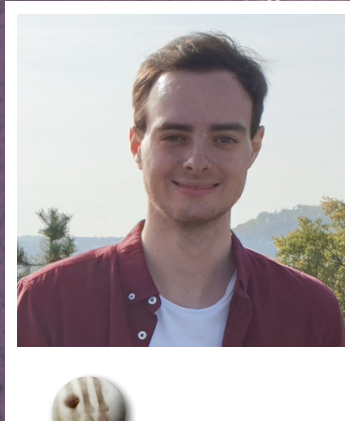
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Max Horst

I am a 2nd year PhD student at TU Darmstadt, working on storage and cooling of highly charged ions (HCI) in a Penning trap. My project called Cooling Trap is located at the HITRAP facility of GSI and is the last element of the deceleration chain. The goal is to trap HCI (e.g. U^{92+}) produced by the GSI complex. In the trap the high-energy ions are cooled by means of electron cooling and are afterwards ejected to subsequent experiments.

Besides my work, I like spending time with friends, traveling and hiking.

Technische Universität Darmstadt, Germany

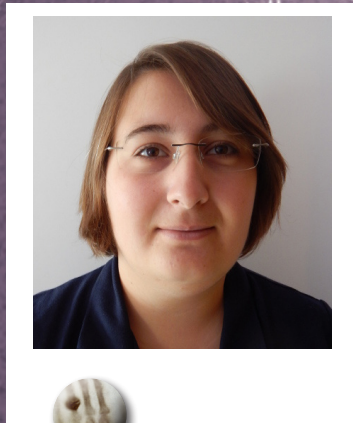
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Sophie Hurier

I am a 2nd year PhD student at the KU Leuven University and I work at the Studiecentrum voor kernenergie or Centre d'étude de l'énergie nucléaire (SCK CEN), Belgium.

My PhD takes place inside the MYRRHA (Multi-purpose hYbrid Research Reactor for High-tech Applications) which is the world's first large-scale Accelerator Driven System project at power levels scalable to industrial systems. In parallel to the reactor, ISOL@MYRRHA, will extract part of the proton beam coming from the accelerator and use it to produce radioactive ion beams with the Isotope Separation On-Line (ISOL) technique. This ISOL facility will have an isotope production increase by using high intensity primary beams for a longer period of time while aiming at maintaining the radioisotope secondary beam quality. The aim of my PhD is to adapt one part of this ISOL system, a surface ion source, to these new conditions before the start of the new accelerator for ISOL@MYRRHA at SCK CEN.

KU Leuven University, Belgium

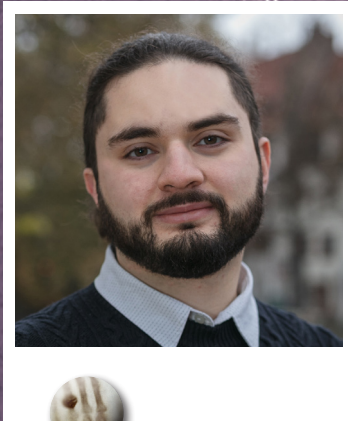
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Denis Jankovic

I will be starting my second year of PhD in a cotutelle between the Institut de Physique et de Chimie des Matériaux de Strasbourg (IPCMS) in France and the Karlsruher Institut für Technologie (KIT) in Germany. My thesis is part of a bigger project aiming to use lanthanides (or rare-earths) embedded in crystals or molecules as qubits for Quantum Information Processing.

I am working at the confluence of three worlds: the molecular world, the electronic world and the nuclear one: on one hand, the high nuclear spin of lanthanides can be used to implement experimentally qubits with a lot of levels; on the other hand, once embedded in an organic matrix, the electronic structure of triply ionized lanthanides provides interesting optical and magnetic properties to address those levels. I try to contribute on the theoretical side to this collaboration and help our experimentalists friends to find the best candidate qubit. Otherwise, I like kendo and martial arts in general, I like movies and animations and enjoy consuming pop science. I also do love Asian food, important detail.

IPCMS, University of Strasbourg, France

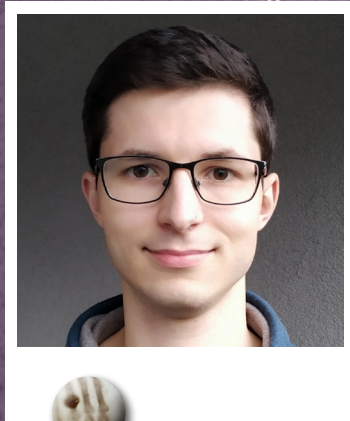
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Marcus Jankowski

I am a first year doctoral student affiliated with the Technical University of Darmstadt, even though I am permanently located at ISOLDE/CERN. Here, I am part of the VITO collaboration that works on a beam line devoted to β -NMR. For this technique, circularly polarised laser light is used to polarise radioactive nuclei which results in an asymmetry of their β -decay. These nuclei are then implanted into a sample. When they are in resonance with an externally applied RF field, the β -asymmetry decreases. The corresponding frequency yields information on the environment of the probed atoms. This approach offers a sensitivity that is significant higher compared to conventional NMR.

So far during my PhD, I have been involved in a major rebuild of the beam line, including the installation of a new superconducting magnet, new beam diagnostics and a new data acquisition system. The latter will also be one of my main responsibilities in order to finalise the implementation of the data acquisition, the control framework and all devices around our beam line.

In my free time, I like to go hiking or cycling, watching a movie, restoring my classic car or playing the piano.

*Technical University Darmstadt, Germany and ISOLDE, CERN,
Switzerland*

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Jake Johnson

I'm a 2nd year PhD student at the institute for nuclear and radiation physics at KU Leuven in Belgium. I am researching how best to extract pure Ac-225 from Thorium or Uranium targets that have been irradiated with high energy protons, to support development of its use in metastasized cancer treatment. I am also building up experiments to investigate the mechanisms by which alpha particles can damage tumor cells.

Other than being in the lab, I enjoy climbing big rocks and trees, cycling or running very far, hearing or reading stories ranging from the profanely mundane to the wonderfully adventurous, and talking to the folk that make up our fine world.

I look forward to discovering more about how the shady nucleus speaks to its atomic electrons.

KU Leuven, Belgium

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Magdalena Anna Kaja

I am a first-year PhD student at the Institut of Physik at the Johannes Gutenberg University Mainz. At the university, I am a member of the LARISSA group. I am also one of the 15 early state researchers in the LISA (Laser Ionization and Spectroscopy of Actinides) ITN project, which is a Marie Skłodowska-Curie Action Innovative Training Network. My PhD topic is laser spectroscopic investigation on the actinide atomic and nuclear structures. These studies should help achieve the project goal, which is to improve the understanding of the atomic and nuclear properties of the actinides. That should benefit the research for the innovative medical treatment and diagnosis and monitor radioactive elements in our environment.

Besides my research, I love traveling and exploring new places.

JGU, Mainz, Germany

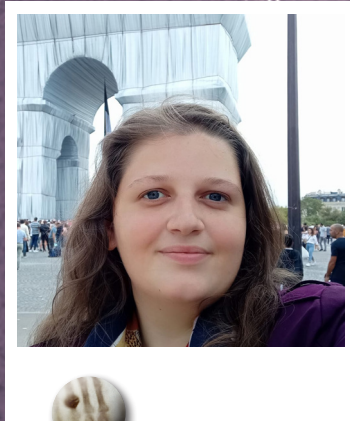
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Desislava Kalaydjieva

I am a PhD student at IRFU/CEA Paris-Saclay, Université Paris-Saclay. Currently, I am analyzing "unsafe" Coulomb-excitation data of ^{106}Cd , obtained in a lifetime-measurement experiment at GANIL, France, that employs the Recoil Distance Doppler-Shift method (RDDS). The goal of my project is to evaluate the effects of the nuclear interaction on the data and to obtain transition probabilities in ^{106}Cd (and ^{92}Mo), independently from the RDDS measurement. To accomplish this, I spent my first year at CEA learning how to use the coupled-channel codes GOSIA and FRESKO. During my second year I will be analyzing data, obtained in an upcoming experiment at TRIUMF, Canada, studying the beta decay of ^{100}Y to ^{100}Zr for determination of a decay scheme, level spins, transition multipolarities, etc. in ^{100}Zr .

Apart from physics, I am passionate about bird-watching, painting and exploring nature.

IRFU/CEA Paris-Saclay, Université Paris-Saclay, France

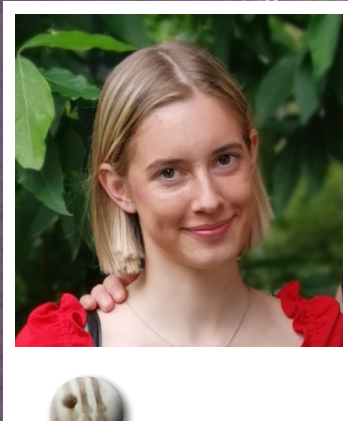
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THE INTERPLAY BETWEEN ATOMIC ELECTRONS AND THE NUCLEUS TRAPS, LASERS, SPECTROSCOPY



Clara Klink

I am a master student of the TU Darmstadt. I work since my Bachelor thesis on the PUMA project which aims on trapping antiprotons in a transportable Penning trap to use them to study the nucleon composition in the tail of the nuclear density distribution. Within this project I performed several ion optical simulations for the planned beamline and studied the antiprotonic de-excitation cascade in atoms. Currently, in the scope of my master thesis, I am working in a collaboration to develop a Paul trap for the offline ion source of PUMA which will provide the first ions of interest to benchmark and further pursue our measurements with stable ions. The Paul trap will cool, bunch and accumulate the ions before they are introduced into the PUMA Penning trap.

Besides physics, I love reading books, preferably fiction of all sorts. I also do some sport, mostly jogging and Judo. I also enjoy tabletop board games and video games.

Technische Universität Darmstadt, Germany

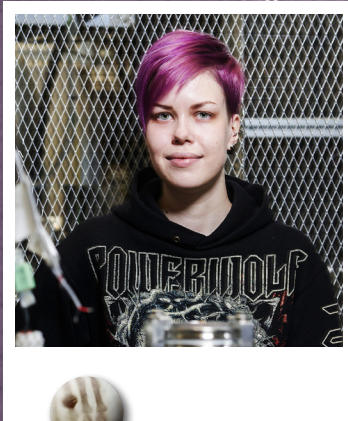
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THE INTERPLAY BETWEEN ATOMIC ELECTRONS AND THE NUCLEUS TRAPS, LASERS, SPECTROSCOPY



Sonja Kujanpää

I'm a 2nd year PhD student at the University of Jyväskylä, specializing in high-resolution laser resonance ionization spectroscopy of radioactive elements. My main research project concentrates on the commissioning of a new collinear resonance ionization spectroscopy apparatus (RAPTOR) at the IGISOL facility. This new experimental setup will enable the study of many compelling isotopes that are currently not accessible anywhere in the world. After the construction and testing of this new device using stable isotopes, measurements on suitable radioactive species such as exotic isotopes of silver and bismuth will be performed.

Other than that, I'm a mediocre artist, a proficient cat-whisperer, and a heavy metal enthusiast.

University of Jyväskylä, Finland

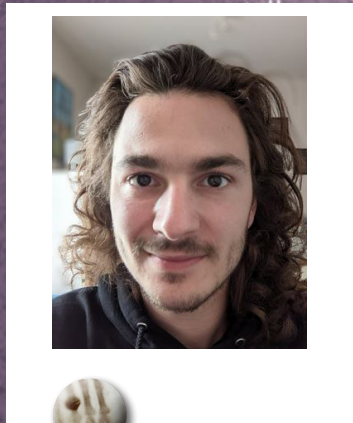
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THE INTERPLAY BETWEEN ATOMIC ELECTRONS AND THE NUCLEUS TRAPS, LASERS, SPECTROSCOPY



Louis Lalanne

I just finished my PhD in nuclear physics about the study of ^{36}Ca using direct reactions at IJCLab, Orsay. I will soon start my first post-doc in laser spectroscopy with CRIS at CERN. This school arrive in perfect time for me and is the best way to start my post-doc.

Beside physics I'm passionate by music and climbing.

IJCLab, Orsay, France



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THE INTERPLAY BETWEEN ATOMIC ELECTRONS AND THE NUCLEUS TRAPS, LASERS, SPECTROSCOPY



Nathalie Lecesne

I am an experimental physicist at GANIL, in Caen. I did my PhD on the production of radioactive ion beams for the SPIRAL1 facility at GANIL. After several years developing thick production targets and ECR ion sources for this facility, I went to a sabbatical leave in TRIUMF, Vancouver, to discover the beauty of Resonant Ionization Laser techniques. For more than twelve years now, I have been working on developing these techniques at GANIL/ SPIRAL2 and in particular at the S³ Low Energy Branch for in gas jet laser spectroscopy experiments. I am looking forward to make as fun things as measure charge radii, nuclear moments and masses of barely existing and very exotic nuclei that will be available in the coming years at SPIRAL2/S³!

GANIL, Caen, France

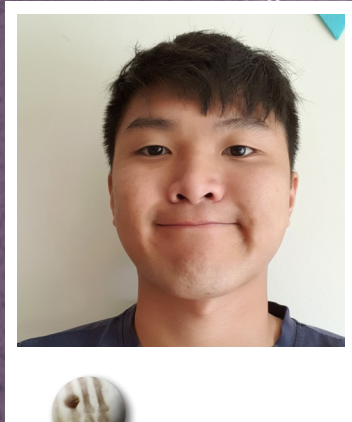
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THE INTERPLAY BETWEEN ATOMIC ELECTRONS AND THE NUCLEUS TRAPS, LASERS, SPECTROSCOPY



Iain Lee

I am entering the 2nd year of my PhD in theoretical nuclear physics. I am interested in numerically calculating nuclear fusion cross sections using an open quantum systems approach and exploring how a plasma environment could alter fusion probabilities in stellar environments. One of my final questions to answer would be to determine the effect of a plasma environment on stellar nucleosynthesis. My first year has been spent mainly on ensuring the accuracy of the numerical technique, which involves approximating the time propagation of a density matrix using Faber polynomials.

In my free time, I enjoy playing frisbee and football, board games and cooking.

University of Surrey, Guildford, Great Britain

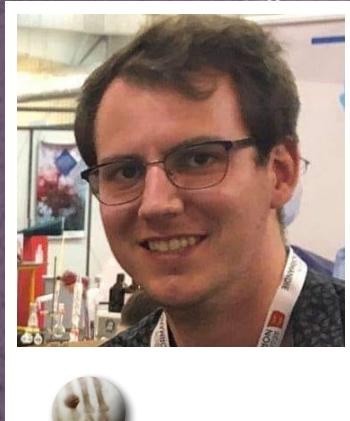
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THE INTERPLAY BETWEEN ATOMIC ELECTRONS AND THE NUCLEUS TRAPS, LASERS, SPECTROSCOPY



Julien Lemarié

I am a third year PhD student at the Grand Accélérateur National d'Ions Lourds (GANIL) based in Caen, France.

I am working on constraining the nuclear equation of state experimentally.

An experiment with the the $^{58.64}\text{Ni}$ isotopes was done to probe the properties of neutron and proton exchanges during nuclei interaction.

The goal is to have a better understand the behaviour of astrophysical objects as neutron stars or supernovae.

Beside work, I explore Normandy with my bike and I just started to learn playing flute.

GANIL, Caen, France

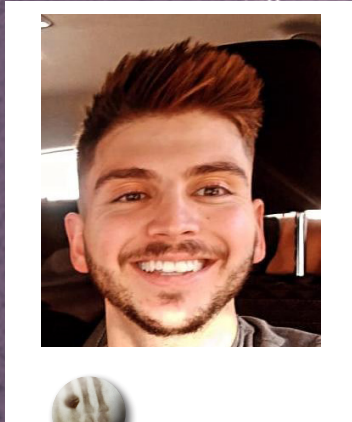
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THE INTERPLAY BETWEEN ATOMIC ELECTRONS AND THE NUCLEUS TRAPS, LASERS, SPECTROSCOPY



Marcos Llanos Expósito

I am a PhD student in Nuclear Physics at the Complutense University of Madrid (UCM). My doctoral thesis is based on the study and analysis of nuclei far from the valley of stability. These nuclei are interesting for having a better understanding of the astrophysical r-process and also could be applied in nuclear medicine technology.

Specifically, my study will address the beta-decay of exotic Cd isotopes, populating In nuclei, using the fast-timing technique and high resolution gamma spectroscopy. This project is carried out at the ISOLDE facility at CERN.

I really like traveling and meet people. Glad to see you soon!

Complutense University of Madrid, Spain

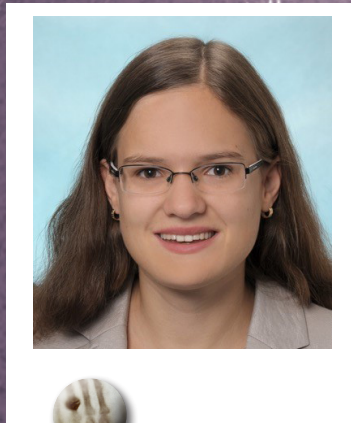
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THE INTERPLAY BETWEEN ATOMIC ELECTRONS AND THE NUCLEUS TRAPS, LASERS, SPECTROSCOPY



Franziska Maria Maier

I am a 2nd year PhD student at ISOLDE/CERN. The goal of my PhD work is to advance the capabilities of multi-reflection time-of-flight (MR-ToF) devices in order to enable new studies of exotic radionuclides. For instance, as part of the MIRACLS collaboration, the use of an MR-ToF instrument for laser spectroscopy will allow us to significantly increase the experimental sensitivity. This is achieved by trapping ion bunches between the two electrostatic mirrors of a MR-ToF device such that the same ion bunch is probed by the spectroscopy laser for thousands of times compared to a single passage in traditional measurement schemes. This novel approach is designed for the determination of nuclear ground state properties of short-lived radionuclides with very low production yields or for more precise measurements of the electron affinities via laser-photodetachment-threshold spectroscopy of (radioactive) negative ions.

Additionally, the pursued advances in ion-trap technology are beneficial for a series of other experiments at radioactive ion beam facilities, especially for programmes with demanding requirements on ion-beam emittance or purity.

In my free time I enjoy being in the nature with climbing, hiking, skiing or swimming in lakes as well as playing board games.

ISOLDE/CERN, Switzerland

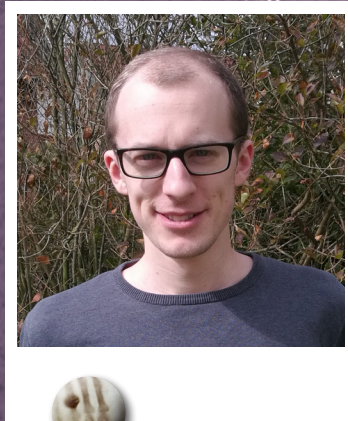
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THE INTERPLAY BETWEEN ATOMIC ELECTRONS AND THE NUCLEUS TRAPS, LASERS, SPECTROSCOPY



Patrick Müller

I am a 2nd year PhD student at the institute of nuclear physics at TU Darmstadt, working on high-precision collinear laser spectroscopy. At the KOALA beamline, we measure electronic transition frequencies of non-radioactive isotopes at the precision level of ion traps, determining isotope shifts, nuclear charge radii or nuclear moments.

In my project, I developed a new lens-based fluorescence detection region which provides a high detection efficiency in the UV-regime and, due to its geometry, enables the investigation of systematic frequency shifts arising from effects such as photon recoils or quantum interference.

With my work I will contribute to our next goal to determine absolute nuclear charge radii in helium-like systems at KOALA and the development of the new LASPEC beamline at GSI/FAIR.

I play football in my local soccer team, like riding mountain bike, meeting friends, reading books, playing the piano and find pleasure in a wide variety of music genres.

Technische Universität Darmstadt, Germany

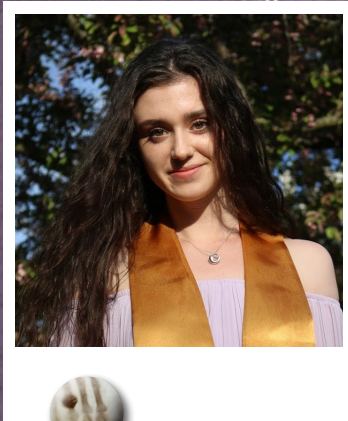
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THE INTERPLAY BETWEEN ATOMIC ELECTRONS AND THE NUCLEUS TRAPS, LASERS, SPECTROSCOPY



Miranda Nichols

I am starting the second year of my PhD in physics at The University of Gothenburg in Gothenburg, Sweden. I am a Marie Skłodowska-Curie fellow in the Laser Ionization and Spectroscopy of Actinides (LISA) network. My focus is on experimental atomic physics where I study negative ions. By using spectroscopic techniques such as laser photodetachment threshold spectroscopy and resonance ionization spectroscopy, atomic structures can be studied. I am most interested in measuring electron affinities for heavy elements, such as the actinides, where relativistic effects are most prevalent.

Outside of the lab, I enjoy to be outside. Any combination of hiking, biking, camping, swimming, and the sauna. I am also an avid gardener and reader. I am currently reading *A Manual for Cleaning Women* by Lucia Berlin.

University of Gothenburg, Göteborg, Sweden

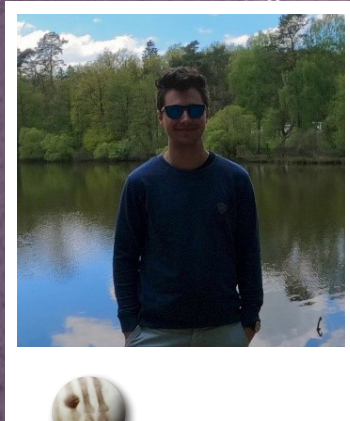
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THE INTERPLAY BETWEEN ATOMIC ELECTRONS AND THE NUCLEUS TRAPS, LASERS, SPECTROSCOPY



Steven Nothhelfer

I am a 3rd year PhD student in nuclear chemistry at the Helmholtz Institute Mainz in Germany. My research is about the development and improvement of a new gas-jet apparatus for high-resolution laser spectroscopy in order to investigate transfermium elements. The long-term goal is to resolve the hyperfine structure of ^{253}No and measure the short-lived K-Isomer in ^{254}No in on-line measurements performed at GSI in Darmstadt. The experiments are carried out using two-step resonance ionization spectroscopy inside of a supersonic or hypersonic gas-jet, which is created by a de Laval nozzle.

Besides academic work, I love playing computer games, reading books, listening to music, spending time with my family and girlfriend, and traveling.

Helmholtz Institute Mainz, Germany

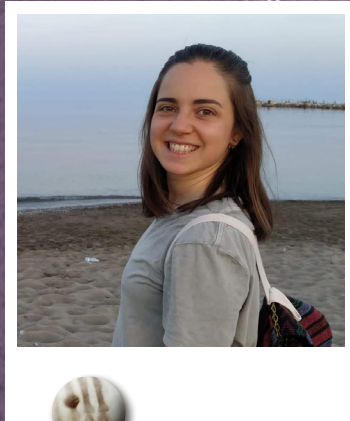
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THE INTERPLAY BETWEEN ATOMIC ELECTRONS AND THE NUCLEUS TRAPS, LASERS, SPECTROSCOPY



Aurora Ortega Moral

I am originally from Spain, I worked during one and a half years in Granada in the theoretical nuclear physics department. I decided then to change to experimental physics, I moved to France and started my PHD two years ago at CENBG (Centre d'Etudes Nucleaires Bordeaux-Gradignan in the NEX group (Exotic Nuclei.) During my thesis, I have to analyse the data of an experiment carried out last May in the GANIL facility about the two proton radioactivity of ^{48}Ni . Such decay is extremely exotic and could give a clue about nuclear structure of nuclei that are far away from the stability valley.

Other than that, I love (almost) all the sports and possible activities in the world and hate doing nothing.

CENBG, Bordeaux, France

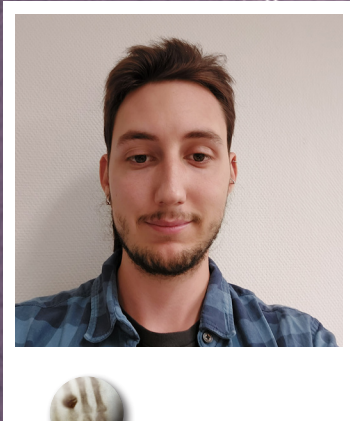
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THE INTERPLAY BETWEEN ATOMIC ELECTRONS AND THE NUCLEUS TRAPS, LASERS, SPECTROSCOPY



Alejandro Ortiz Cortes

I am a third year PhD student at GANIL and the University of Jyväskylä (France and Finland). My topic is laser spectroscopy on the palladium isotopic chain. I have been one year at the IGISOL facility of the University of Jyväskylä working on the collinear line where the palladium measurement was performed and now I am in GANIL on the S3-LEB collaboration.

GANIL, Caen, France and University of Jyväskylä, Finland



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THE INTERPLAY BETWEEN ATOMIC ELECTRONS AND THE NUCLEUS TRAPS, LASERS, SPECTROSCOPY



Julgen Pellumaj

I am a first year PhD student of University of Ferrara associated with the Gamma Spectroscopy group of Laboratori Nazionali di Legnaro (LNL-INFN).

Currently I am analysing some data of an experiment performed in LNL during this year which consist on lifetime measurements on ^{83}Se using the Plunger technique and the Doppler Shift Attenuation Method for the study of the $N=50$ core breaking.

During my PhD I will also contribute on the AGATA installation, expected to reach soon our laboratory.

Besides my research work I like a lot traveling, sport and photography.

LNL-INFN, Legnaro, Italy

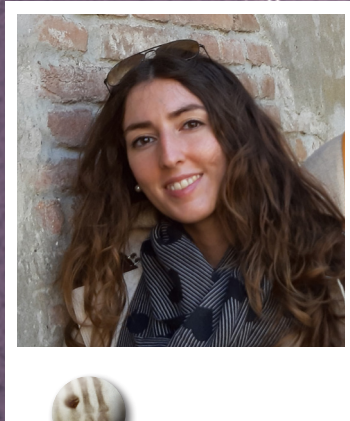
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THE INTERPLAY BETWEEN ATOMIC ELECTRONS AND THE NUCLEUS TRAPS, LASERS, SPECTROSCOPY



Rosa María Pérez Vidal

I'm a postdoctoral researcher in experimental nuclear physics working at INFN-LNL in Italy. I did my PhD studies at IFIC-University of Valencia in Spain, where I studied the partial seniority conservation along the proton $g_{9/2}$ shell through lifetime measurements of the $N=50$ isotones towards 100Sn . My research activities are focused on studying nuclear properties of exotic nuclei using gamma-ray spectroscopy. I have worked in nuclear physics experimentation in laboratories such as LNL, GSI and GANIL gaining experience in the use and analysis of the detectors employed there. I am an active member of the Advanced GAMMA Tracking Array Collaboration and I have participated in all the experimental campaigns of AGATA since 2014. AGATA will be installed at LNL in the next months and I will contribute to the installation, preparation and performance of the detector, as well as, to the future experimental campaigns.

During my free time I enjoy discovering Padova and trying new restaurants with my friends. I also like drawing and painting.

LNL-INFN, Legnaro, Italy

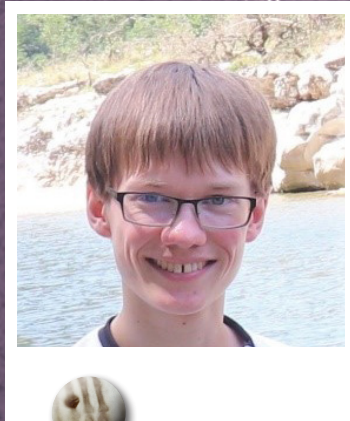
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THE INTERPLAY BETWEEN ATOMIC ELECTRONS AND THE NUCLEUS TRAPS, LASERS, SPECTROSCOPY



Valentin Piau

I am a PhD student at the 'Commissariat à l'Énergie Atomique' (CEA), in the Cadarache center (south of France). I spent the first year of my PhD in the Joint Research Center (JRC) of Geel, in the north of Belgium. My PhD thesis focuses on the fission process, and in particular the deexcitation of the fission fragments. In Belgium, I was analyzing the gamma rays emission from a ^{252}Cf fission source. Now, I am working on a Monte Carlo code developed in Cadarache that simulates the deexcitation of fission fragments, with the aim of reproducing what has been experimentally observed in Geel.

Besides the PhD, I like hiking, reading, and traveling.

CEA, Saint Paul Lez Durance, France

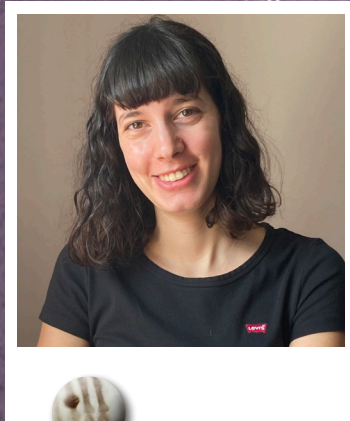
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THE INTERPLAY BETWEEN ATOMIC ELECTRONS AND THE NUCLEUS TRAPS, LASERS, SPECTROSCOPY



Marta Poletini

I am currently pursuing a PhD in experimental nuclear physics at the University of Milano, Italy. My research project is focused on investigating octupole deformation in heavy nuclei in the $A \sim 225$ Po-Fr region. Towards this, I performed an experiment with ^{238}U beam at GSI Germany as a part of the FAIR-0 campaign in the DESPEC collaboration. My primary interests include beta decay measurements, fast-timing techniques, magnetic spectrometer simulations, solid-state devices, and various detector systems related to RIB experiments. Over the past two years, I have spent time at the University of Milano and at GSI to carry out various research activities including and beyond my PhD subject.

I like spending time with my friends, I am into music, cinema and history and I enjoy travelling and outdoor activities such as hiking.

University of Milano, Italy

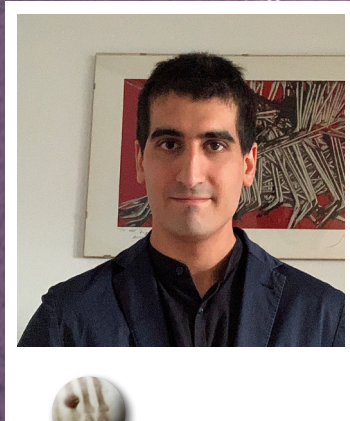
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THE INTERPLAY BETWEEN ATOMIC ELECTRONS AND THE NUCLEUS TRAPS, LASERS, SPECTROSCOPY



Andrea Raggio

I am a second year PhD student in Jyväskylä working in the IGISOL group of the JYFL accelerator laboratory. As part of the ITN LISA project my focus is the extraction of nuclear properties of actinide elements by means of high resolution laser spectroscopy. In particular we are investigating the production and subsequent laser studies of the low energy isomeric state of ^{235}U .

In parallel, the analysis of a decay spectroscopy experiment in collaboration with Emmanuel Rey-Herme from CEA will provide an important insight on neutron deficient actinide production at IGISOL.

When I'm not in the lab playing with detectors or lasers I enjoy the cold Finnish weather (possibly in a sauna) or I have a beer in Vakkioipaine with Jorge and Alex.

University of Jyväskylä, Finland

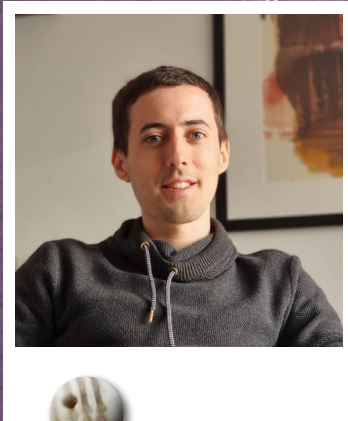
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THE INTERPLAY BETWEEN ATOMIC ELECTRONS AND THE NUCLEUS TRAPS, LASERS, SPECTROSCOPY



Simon Rausch

I am a first year PhD student at the institute for nuclear physics at Technische Universität Darmstadt. I am working on the HITRAP project at GSI where I also did my master thesis. My work focuses on the preparation of highly charged ions for precision experiments. In particular, the ions will be trapped and cooled with various cooling mechanisms before being delivered to further experiments. Recently, I am investigating electron cooling by trapping electrons and ions simultaneously.

Apart from work, I like playing all kinds of sports and meeting friends.

Technische Universität Darmstadt, Germany



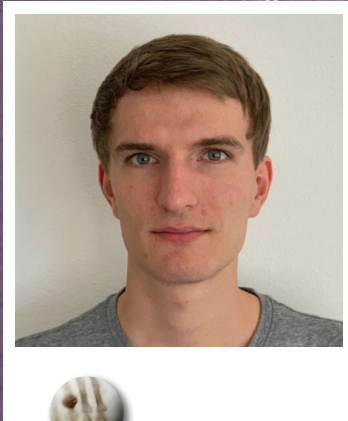
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THE INTERPLAY BETWEEN ATOMIC ELECTRONS AND THE NUCLEUS TRAPS, LASERS, SPECTROSCOPY



Martijn Reitsma

I am a PhD student in my second year at the University of Groningen, where I study computational chemistry methods to determine atomic and nuclear properties. More specifically I am working to extend the Fock-space coupled cluster method and I am involved in developing basis sets.

Beside that I work on calculating properties, such as isotope shift and hyperfine structure parameters, in collaboration with experimental groups.

University of Groningen, the Netherlands



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THE INTERPLAY BETWEEN ATOMIC ELECTRONS AND THE NUCLEUS TRAPS, LASERS, SPECTROSCOPY



Emmanuel Rey-Herme

I am starting my second year as a PhD student in experimental nuclear physics at CEA Saclay. I am studying neutron-deficient actinides, in particular their decay properties, through the analysis of data from an experiment that took place at IGISOL, Jyväskylä. In parallel, I am working on the development of SEASON, a detector designed to combine decay spectroscopy and laser spectroscopy at GANIL.

I am also a passionate of theatre, role-playing and board games.

CEA, Saclay, France

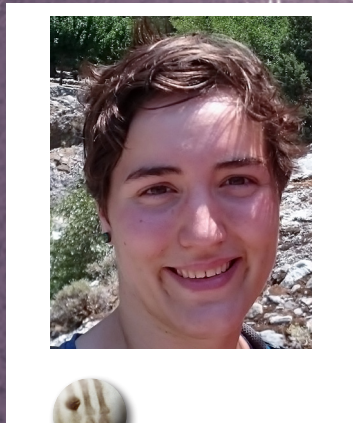
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THE INTERPLAY BETWEEN ATOMIC ELECTRONS AND THE NUCLEUS TRAPS, LASERS, SPECTROSCOPY



Elisabeth Rickert

Coming from physics, I have a nuclear chemistry PhD position at the Helmholtz Institute Mainz in Germany. My research is about ion mobility studies of several monoatomic actinide ions with a mobility spectrometer, that I am updating and improving. I am also implementing a cryogenic drift chamber to study temperature influence on the drifting ion species. Moreover, I am involved in GSI beamtimes to study nuclear properties of heavy ion species by resonance ionization spectroscopy. I am mainly responsible for data evaluation of the isotope shift of different Fermium isotopes.

In my free time I enjoy swimming in my local swim team, cycling, hiking, gardening and reading. Otherwise I like boardgame evenings with friends.

HIM/GSI/JGU, Mainz, Germany

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THE INTERPLAY BETWEEN ATOMIC ELECTRONS AND THE NUCLEUS TRAPS, LASERS, SPECTROSCOPY



Jekabs Romans

I am a 3rd year PhD student in the department of physics and astronomy (IKS) at KU Leuven. My work focuses on in-gas-jet laser ionization spectroscopy with the goal of nuclear ground state extraction. I have been working most of my time on commissioning work of the Super-Separator-Spectrometer Low Energy Branch (S3-LEB) at GANIL and LPC-Caen laboratories in Normandy, France. This work combines development of laser ion sources and ion guide/filter alignment, adjustment and simulations along the full S3-LEB beam line. Prior to this work I was introduced to laser application as ion source and ion guides/filters at TRIUMF (Canada) laboratory during my master's thesis work and since then this has been an interesting avenue to explore.

During my free time I enjoy biking and hiking.

IKS, KU Leuven, Belgium

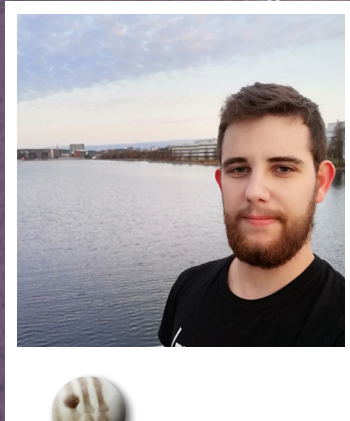
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THE INTERPLAY BETWEEN ATOMIC ELECTRONS AND THE NUCLEUS TRAPS, LASERS, SPECTROSCOPY



Jorge Romero

I am starting my 3rd year of a Dual Doctoral programme in the Universities of Liverpool and Jyväskylä. My work is focused on the development of the new MARA-LEB facility in Jyväskylä to study proton-rich isotopes relevant to stellar nucleosynthesis.

After work hours, you might find me having fun in the snow at -20°C or in a Finnish sauna at 100°C . Otherwise, I'll probably be having a beer with Andrea and Alex in Vakiopaine.

IKS, KU Leuven, Belgium

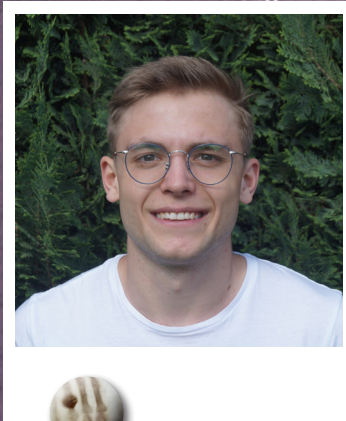
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THE INTERPLAY BETWEEN ATOMIC ELECTRONS AND THE NUCLEUS TRAPS, LASERS, SPECTROSCOPY



Moritz Schlaich

My interest in physics developed after a school internship at GSI in Darmstadt. Consequently, I have studied physics at the TU Darmstadt for the last 5 years and am currently working on my Master's thesis. As with the bachelor thesis, I am part of the PUMA project. It aims to trap antiprotons in a transportable trap and use them for nuclear physics studies of stable and exotic isotopes such as the investigation of the isospin composition in the tail of the nuclear matter distribution. Within this project I am developing a multi-reflection time-of-flight mass spectrometer (MR-ToF MS) for the offline ion source providing isotopes of interest. The MR-ToF MS will be used for mass separation to obtain a beam that is as isotopically pure as possible.

Besides my studies I love to do sports. Especially I enjoy gymnastics, hiking and cycling.

Technische Universität Darmstadt, Germany

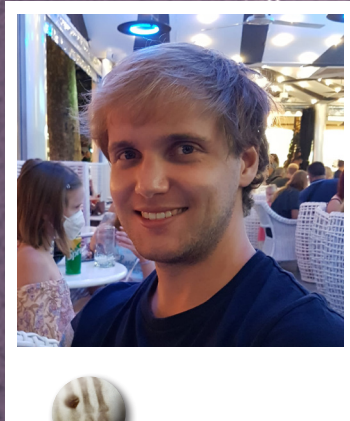
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THE INTERPLAY BETWEEN ATOMIC ELECTRONS AND THE NUCLEUS TRAPS, LASERS, SPECTROSCOPY



Alexander Schmidt

I am a second year PhD student at the institute for nuclear physics at the Technical University of Darmstadt. Following up on my master thesis I continued to work on the PUMA project, which aims at investigating the density tails of short-lived isotopes with antiprotons. It was accepted as a CERN experiment this summer. My work currently focuses on the design and planning of a cryogenic trap setup, which allows a long-term storage of antiprotons as well as a mixing of antiprotons and ions in a separate trap volume. After the installation of the experiment, the first reference measurements with stable ions and antiprotons are foreseen for the end of 2022.

Apart from work, I really enjoy meeting friends and doing sports, especially handball and other kinds of ball sports.

Technische Universität Darmstadt, Germany

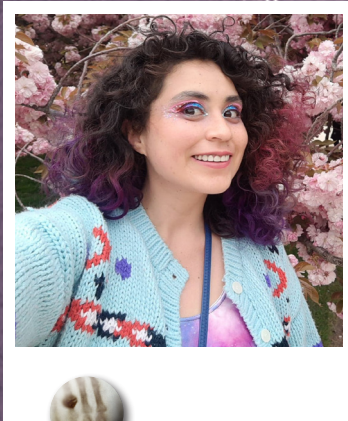
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THE INTERPLAY BETWEEN ATOMIC ELECTRONS AND THE NUCLEUS TRAPS, LASERS, SPECTROSCOPY



Anahi Segovia-Miranda

I'm about to start the third year of my PhD at Paris-Saclay University, working at the Irène-Joliot Curie Physics of Two Infinities Lab (IJCLab) at the resonance ionization laser ion source of ALTO (RIALTO).

RIALTO aims to produce pure ion beams using the resonance ionization technique, an efficient and highly selective way to ionize exotic isotopes using a multi-step laser excitation process. In my thesis project we search to develop beams of Silver, Gallium and Antimony for the study of its magnetic properties at POLAREX (POLARized EXotic nuclei) with the Low Temperature Nuclear Orientation method.

Besides physics I love arts. I like museums, cinema, contemporary and classical dance. I also like make up and drag and I enjoy long walks playing pokémon go.

University Paris-Saclay, IJCLab, Orsay, France

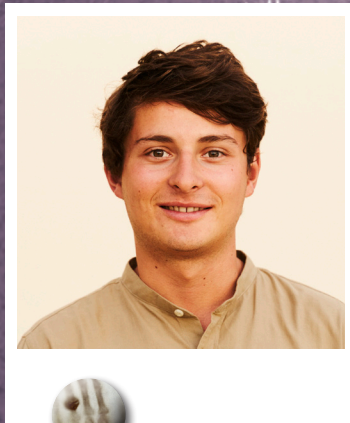
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THE INTERPLAY BETWEEN ATOMIC ELECTRONS AND THE NUCLEUS TRAPS, LASERS, SPECTROSCOPY



Jean Servais

I completed my master's degree in Engineering Physics at the Université libre de Bruxelles (Belgique) in June 2020. I started my PhD exactly one year ago. The overall goal of my thesis is to describe theoretically and compute accurately the resonant characteristics of some three-body quantum systems, focusing mainly on systems containing antimatter (such as the antiprotonic helium atom). During this first year, I worked on developing and extending numerical methods, the Lagrange-mesh method and the complex scaling method, to compute accurately the resonance properties of some well-known systems (such as the helium atom He or the positronium ion Ps⁻). I plan to extend it to the study of other systems in the next few months.

In my spare time, I love reading, playing the piano, running, swimming or traveling (trying not to fly). I am also taking an evening program in business and management at the Solvay Brussels School, for a two-year master. This program focuses on extremely different topics compared to my thesis. I like diversity above all else !

Université Libre de Bruxelles, Belgium

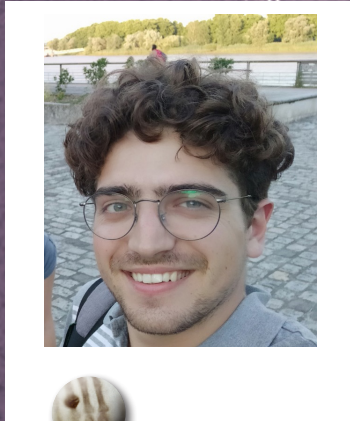
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THE INTERPLAY BETWEEN ATOMIC ELECTRONS AND THE NUCLEUS TRAPS, LASERS, SPECTROSCOPY



Michele Sguazzin

I am about to start my 3rd year of PhD thesis in Experimental Nuclear Physics at the Centre d'Etudes Nucleaires de Bordeaux-Gradignan (CENBG) in France. Since my high school studies I have developed a large interest about nuclear physics strengthened by my master studies and my thesis experience at the INFN. Currently I'm involved on the NECTAR project (Nuclear rEaCTion At storage Rings) aimed to combine for the first time surrogate reactions with ion storage rings. The ultimate goal is to perform indirect measurements of neutron-induced reaction cross sections of short-lived nuclei overcoming problems related to the projectile and target radioactivity, and taking advantage of the unique possibilities offered by storage rings. Our investigation will be performed at the ESR@CRYRING storage rings complex of the GSI/FAIR facility (Germany).

My interests are not limited to physics, I like to play the piano, hike in the mountains, and travel.

Centre d'Etudes Nucleaires de Bordeaux-Gradignan (CENBG), France

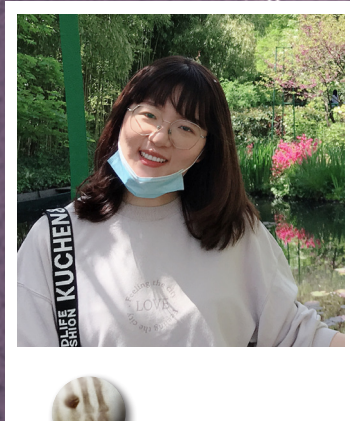
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THE INTERPLAY BETWEEN ATOMIC ELECTRONS AND THE NUCLEUS TRAPS, LASERS, SPECTROSCOPY



Min Si

I am a 3rd year PhD student of the Laboratoire de Physique des 2 infinis Irène Joliot-Curie (ijclab) at the University of Paris-Saclay. My PhD thesis deal with the beta decay of neutron rich nuclei around double magic nucleus ^{132}Sn . I am focusing on the nuclear structure of ^{136}Te after beta decay of ^{136}Sb and compare the result with the predictions of theoretical calculation. This work help us understand its impact on the r-process descriptions around ^{132}Sn especially the neutron rich Te isotopes are expected to have their own peculiar characteristics in terms of the collective motion.

During my free time, I like travel so much, discover different people with different life style, experiment different cultures. Also I enjoy music and sport, especially badminton.

University Paris-Saclay, IJCLab, Orsay, France

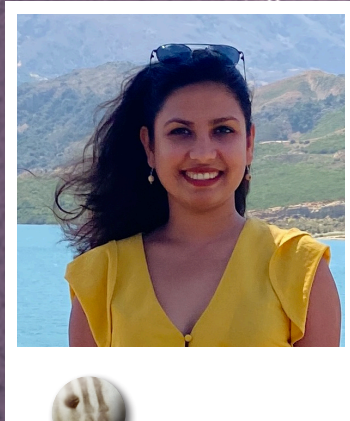
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THE INTERPLAY BETWEEN ATOMIC ELECTRONS AND THE NUCLEUS TRAPS, LASERS, SPECTROSCOPY



Abhilasha Singh

I am a postdoctoral researcher in experimental nuclear physics working at GANIL, Caen. I completed my Ph.D. at the Laboratoire National Henri Becquerel (LNHB) at CEA Saclay where I developed a detection setup based on Si detectors to study the shape of beta spectra. Currently, I am working on the Matter's Origin from Radioactivity (MORA) project for the search of New Physics in nuclear beta decays by using an innovative in-trap laser polarization technique. The goal is to measure the D-correlation in the decay of $^{23}\text{Mg}^+$ ions. My work mainly focuses on investigating the systematics effects in MORA.

Besides research work, I enjoy exploring the world, hiking, biking, and cooking.

GANIL, Caen, France

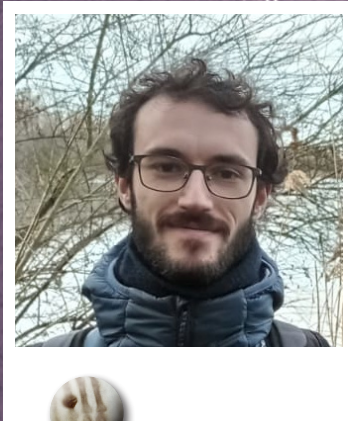
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THE INTERPLAY BETWEEN ATOMIC ELECTRONS AND THE NUCLEUS TRAPS, LASERS, SPECTROSCOPY



Konstantin Stoychev

I am starting my second year as a PhD student at IJCLab in Orsay, France. The main topic of my thesis is measuring g factors of excited states in exotic nuclei in order to investigate the nuclear shell model far from stability. I am currently analyzing data obtained from an experiment at ISOLDE, CERN aiming to extract the g factors of the first excited states in ^{22}Ne and ^{28}Mg . I will also participate in planned future experiments at the ALTO facility in Orsay, JYFL (Finland) and RIKEN (Japan). The data obtained from some of these experiments will also be part of my thesis work.

Outside of physics, I like reading books, traveling, hiking and dinosaurs.

IJCLab in Orsay, France

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THE INTERPLAY BETWEEN ATOMIC ELECTRONS AND THE NUCLEUS TRAPS, LASERS, SPECTROSCOPY



Darcy Van Eerten

I'm a PhD student at the Institute for Radioecology and Radiation Protection (IRS in German) as part of the LISA ITN. In Hannover I am working on a method for ultra-trace analysis of actinides in environmental samples. By combining TOF-SIMS with resonant laser ionisation, we can non-destructively analyse complex samples, such as hot particles found in the Chernobyl Exclusion Zone. It's a fascinating interface between many different fields of Physics, but also shows how research can directly affect society. By better understanding the anthropogenic actinides in the environment, we can be better equipped to handle them in the present and future.

At the school, you'll probably find me enjoying being by the sea (being generally deprived of it), reading, or generally chatting nonsense over some food and drinks. I'll be the tall blonde one with the American accent.

IRS-LUH, Hannover, Germany

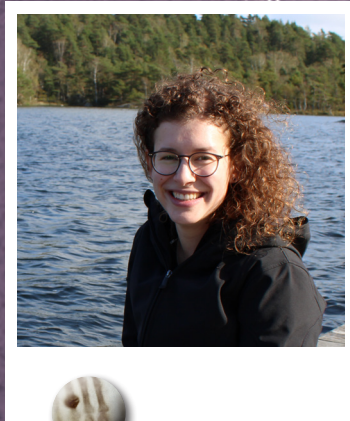
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THE INTERPLAY BETWEEN ATOMIC ELECTRONS AND THE NUCLEUS TRAPS, LASERS, SPECTROSCOPY



Jessica Warbinek

I have just started the second year of my PhD in nuclear physics at the GSI Helmholtz Centre in Darmstadt, Germany. I am a Marie Skłodowska-Curie fellow in the LISA Innovative Training Network which specializes in Laser Ionization and Spectroscopy of Actinides. My work in this project focuses on laser spectroscopy of the heaviest actinides, in particular on performing the first laser spectroscopic study of the heaviest actinide lawrencium by resonance ionization spectroscopy. By identifying the first atomic states, atomic and nuclear properties of this very exotic element can be determined to benchmark theoretical calculations and improve our understanding of the heaviest elements.

When I am not in the lab, I enjoy being outside, especially hiking and swimming. I am also involved as a lifeguard and I am passionate about making music and going to concerts.

GSI Helmholtz Centre Darmstadt, Germany

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THE INTERPLAY BETWEEN ATOMIC ELECTRONS AND THE NUCLEUS TRAPS, LASERS, SPECTROSCOPY




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THE INTERPLAY BETWEEN ATOMIC ELECTRONS AND THE NUCLEUS TRAPS, LASERS, SPECTROSCOPY



Serge Franchoo

I did my studies at the university of Louvain in Belgium, followed by a postdoc at Isolde at Cern. Presently I am a researcher at the IJC laboratory in Orsay.

I am involved in the development of laser spectroscopy in a gas jet for Spiral-2 at Ganil. It will be coupled to the S3 spectrometer that is under construction.

I also do nuclear spectroscopy experiments at various places, but mostly Isolde & Riken.

IJCLab, Orsay, France

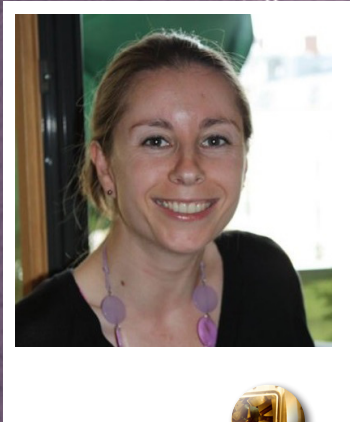
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THE INTERPLAY BETWEEN ATOMIC ELECTRONS AND THE NUCLEUS TRAPS, LASERS, SPECTROSCOPY



Aurélie Gontier

I am the administrative head of the Laboratoire de Physique Corpusculaire de Caen. I am in charge of the budget and human resources of the laboratory.

Since October 2016, I am the administrative head of the Joliot-Curie School.

LPC Caen, France

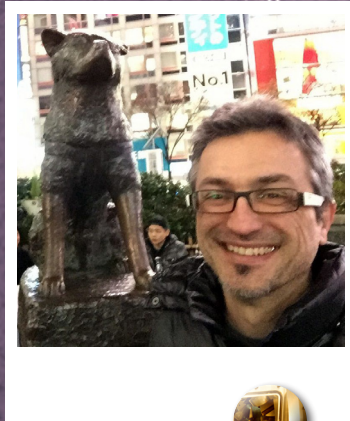
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THE INTERPLAY BETWEEN ATOMIC ELECTRONS AND THE NUCLEUS TRAPS, LASERS, SPECTROSCOPY



Miguel Marques

My group explores the limits of neutron binding in nuclei and the potential new phenomena that may arise. We started this research at GANIL, with experiments probing the neutron dripline and beyond up to Beryllium, and a few years ago we moved to RIKEN in order to extend our search: to the highest masses available in the world, from Boron to Fluorine; and to the most exotic systems, like neutron clusters and multineutron emitters.

*Staff researcher
Head of Joliot-Curie School
LPC Caen, France*

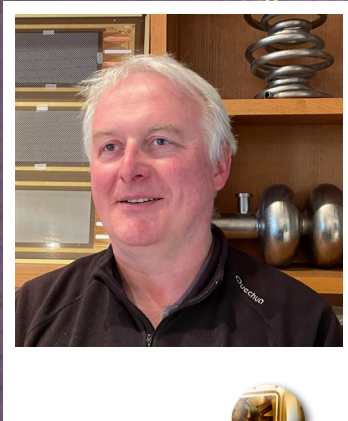
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THE INTERPLAY BETWEEN ATOMIC ELECTRONS AND THE NUCLEUS TRAPS, LASERS, SPECTROSCOPY



Christophe Theisen

I am a nuclear experimentalist working on the heaviest nuclei. In our group, we study these rare and fragile nuclei using alpha, electron and gamma spectroscopy; the idea is to explore the nuclear matter under extreme conditions. I'm based at CEA Saclay, France and perform experiments in several places such as Jyväskylä in Finland or GANIL in France.

I have some sympathy for Joliot-Curie school after two participations as a student and two as a teacher. Few years ago I had the opportunity to join the scientific council. This is my first participation as a member of the local organizing committee.

This 2020(1) Joliot-Curie School edition is of great relevance for me since the study of the heaviest nuclei often requires looking at atomic processes.

CEA Saclay, Université Paris-Saclay, France

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THE INTERPLAY BETWEEN ATOMIC ELECTRONS AND THE NUCLEUS TRAPS, LASERS, SPECTROSCOPY



Marine Vandebrouck

I am an experimental physicist, working on the study of nuclear structure. In our group at CEA Saclay, we carry out experimental programs aiming at the spectroscopy of actinides or even heavier nuclei, mainly at GANIL in France and at the University of Jyväskylä in Finland. The goal is to understand the properties and the existence of such heavy nuclei.

I also have an activity focused on the study of collective excitation modes of the nucleus.

CEA Saclay Irfu/DPhN, France



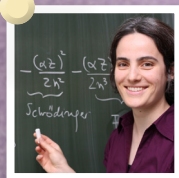
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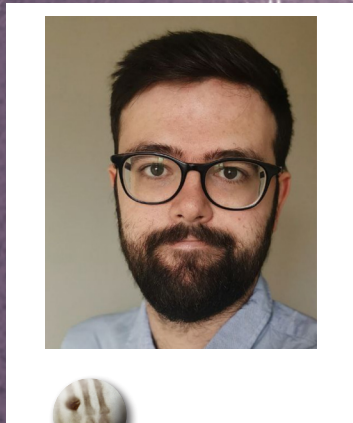
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THE INTERPLAY BETWEEN ATOMIC ELECTRONS AND THE NUCLEUS TRAPS, LASERS, SPECTROSCOPY



Ruben de Groot

I completed my PhD at the University of Leuven, in Belgium, after also spending lots of time in the ISOLDE laboratory at CERN. My thesis introduced me to the world of laser spectroscopy research at accelerator laboratories. Since then, I've spent four years at the accelerator laboratory in the University of Jyväskylä, where I have been lucky enough to be part of many fascinating experiments. I recently got a position at the University of Leuven, from where I plan to continue research into nuclear structure physics with atoms, molecules, and lasers!

University of Jyväskylä, Finland

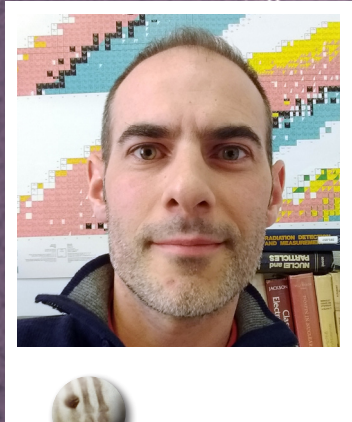


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Mathias Gerbaux

After studying electron and proton acceleration through laser-plasma interaction during my PhD, I shifted to the topic of high gradient accelerating RF structures during a fellowship at CERN. I then joined the Exotic Nuclei group at CENBG to start developing ion traps in the framework of the SPIRAL2/DESIR project. We built the General Purpose Ion Buncher (GPIB) that will be the cooler and buncher for all the beams going to the DESIR hall in GANIL and PIPERADE, a double Penning trap system dedicated both to beam purification and nuclear mass measurement. Beyond these activities, I'm also involved in the other group activities on exotic radioactivities and Standard Model tests through high precision studies of β decays.

Half of my working time is also devoted to teaching at the University of Bordeaux, mainly about nuclear physics and electromagnetics.

Université de Bordeaux - Centre d'Études Nucléaires de Bordeaux-Gradignan, France

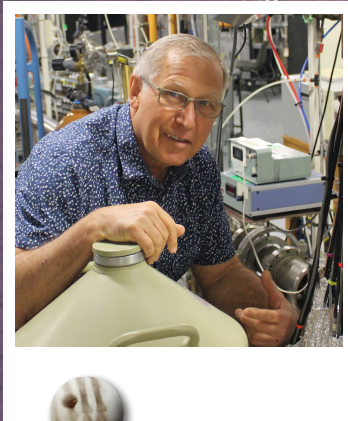
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Tibor Kibédi

I am an experimental nuclear physicist working on internal conversion and electron-positron pair spectroscopy. I completed my PhD in Debrecen, Hungary before moving to Canberra for a postdoctoral position at the Australian National University. Using ion beams from a tandem accelerator, I studied the decay of long-lived isomeric states as well as electric monopole (E0) transitions, to explore the evolution of nuclear shape coexistence. More recently, I investigated the decay of the Hoyle state in C-12, which is responsible for the production of carbon in the Universe.

I also develop computer codes like BrIcc to obtain theoretical internal conversion coefficients, and BrIccEmis to evaluate the full energy spectrum of Auger electrons and X-rays from nuclear decay.

The Australian National University, Canberra, Australia

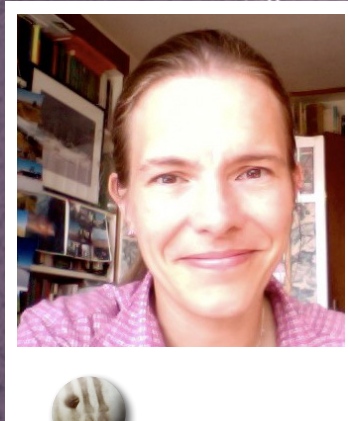
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THE INTERPLAY BETWEEN ATOMIC ELECTRONS AND THE NUCLEUS TRAPS, LASERS, SPECTROSCOPY



Araceli Lopez-Martens

I work at the newly-created IJCLab in Orsay. I did my PhD in nuclear physics at the CSNSM on the study of high spin phenomena and in particular on superdeformation. After a postdoc at the Niels Bohr Institute in Copenhagen, I started my career at CNRS and worked on the manifestations of chaos in nuclei with the European Gamma-ray detector EUROBALL. After EUROBALL was dismantled in 2003, I began working on tracking algorithms for the Advanced Gamma-ray Tracking Array and became interested in the structure and dynamics of super heavy nuclei, which I now study mainly at the Flerov Laboratory of Nuclear Reactions (Russia), but also at the University of Jyväskylä (Finland) and Argonne National Laboratory (USA).

Laboratoire de Physique des 2 infinis Irène Joliot-Curie, Paris-Saclay, France

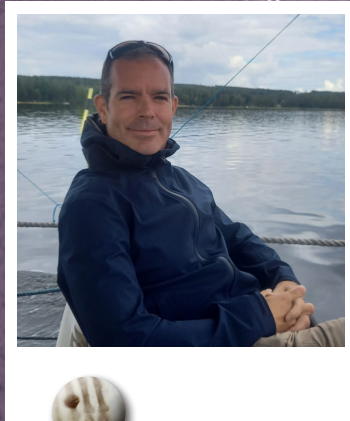
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Iain Moore

After my PhD at the University of Manchester, I spent two years at Argonne National Laboratory working on atom trapping of trace isotopes. I then moved to Jyväskylä, Finland, where I have remained ever since. My main interests are in the use of laser spectroscopic techniques for the exploration of radioactive nuclei, as well as the use of lasers in radioactive ion beam production and manipulation. I am currently joint leader of the IGISOL research team, overseeing a variety of exciting projects with a great group of enthusiastic researchers. When not entertaining myself in the laboratory, I can be found (not quite as enthusiastically) reviewing articles and applications in my office. In recent years, I spend my free time practicing yoga. And I travel a lot less 😊 !

University of Jyväskylä, Finland

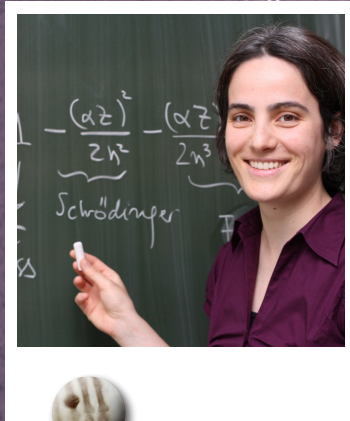
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Adriana Palffy

I am a theorist and started working on the interplay between atomic and nuclear degrees of freedom during my PhD at the University of Giessen in Germany. Later on I moved to Heidelberg to the Max Planck Institute for Nuclear Physics where I have spent many years as a PostDoc and later on as group leader. My group "Nuclear and atomic quantum dynamics" continued to work on the atomic-nuclear coupling, but also on topics of x-ray quantum optics and a nuclear clock based on the ^{229}Th isomeric transition. Since 2020 I am a Heisenberg Fellow at the University of Erlangen-Nürnberg in Germany.

Friedrich Alexander University of Erlangen-Nürnberg, Germany

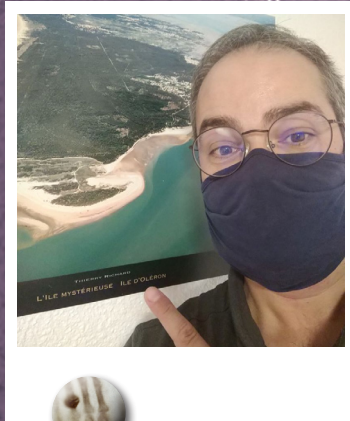
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Medhi Tarisien

I am an experimental physicist working at the interface between atomic, plasma and nuclear physics. I did my Ph.D. at CIRIL (Caen-France), the atomic physics laboratory on the GANIL site, where I studied the fragmentation of simple molecules induced by multi-charged ions. Then I worked at GSI (Darmstadt-Germany) on the ion traps of SHIPTRAP before joining the CEA (Bruyères-le-Châtel-France) as a postdoc, to study the nuclear excitation induced by electron capture on atomic layers (NEEC). I am now an assistant professor at the University of Bordeaux where I work with high power lasers to study excited nuclei in plasmas and laser driven particles acceleration.

University of Bordeaux, France

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