

CURRICULUM VITAE

Dr. Alexander Knyazev

1. Education:

- 2002 – 2010 Ural Federal University (former Ural State Technical University). Graduated in 2010 with a bachelor’s degree in applied mathematics and physics. Thesis on acoustic emission in aluminum under crystallization,
- 2010 – 2012 Dubna International University for Nature, Society and Man. Graduated in 2012 with a master’s degree in physics. Thesis on multi nucleon transfer processes in reaction $^{136}\text{Xe}+^{208}\text{Pb}$ at energies about Coulomb barrier,
- 2016 – 2020: PhD student at Nuclear Physics division, Lund University. A PhD thesis titled “Reactions with radioactive beams and development of scintillator-based detector systems” was defended in October 2020.

2. Work experience:

- 2011 – 2018: R&D work at FLNR JINR,
- 2014 – 2016: R&D work for the EXPERT group,
- 2021 – present: R&D work at FLNR JINR.
- Took part in experiments:
 - Search of heavy neutron rich nuclei near neutron close shell $N = 126$ in reaction $^{136}\text{Xe} + ^{208}\text{Pb}$ at FLNR JINR 2011,
 - Investigation of super heavy nuclei production possibility in reaction $^{238}\text{U} + ^{238}\text{U}$ at GSI 2012,

- Search for two proton decay mode of first excitation level ($3/2^-$) of ^{17}Ne in reaction $p(^{18}\text{Ne}, d)^{17}\text{Ne}$ at FLNR JINR 2013,
- Radiation hardness measurements of silicon detectors at FLNR JINR 2013,
- Time resolution measurements of silicon detectors at GSI 2014,
- Investigation of β -delayed proton emission from ^{26}P and ^{27}S at FLNR JINR 2015,
- Radiation hardness measurements of silicon detectors at FLNR JINR 2015,
- Investigation of neutron halo in ^{15}C coulomb scattering at HIE-ISOLDE CERN 2017,
- Coulomb excitation of $^{106,108,110}\text{Sn}$ at HIE-ISOLDE CERN 2017,
- Measurement of $(p, 2p)$ reaction on $^{112,124}\text{Sn}$ and ^{16}O at CCB Krakow 2017,
- Commissioning of the R³B setup, FAIR 2019,
- Investigation of single-particle structure of neutron-rich Ca isotopes at FAIR 2020,
- Investigation of fission of uranium isotopes with relativistic beams at FAIR 2021,
- Investigation of density dependence of the symmetry energy in Sn isotopes at FAIR 2021,
- Coulomb dissociation of ^{16}O at FAIR 2021,
- Investigation of two-neutron transfer from ^6He in $^4\text{He}(^6\text{He}, ^4\text{He})^6\text{He}$ reaction at FLNR 2024.

3. Experience, visibility and acceptance in professional environment:

- fragment separator ACCULINNA-2,
- radiation hard silicon detectors and amplitudes generator for EXPERT project,
- testing station for scintillator acceptance tests for CALIFA project,
- support and development of the CALIFA detector modules,
- development of a BC404-based modular time-of-flight spectrometer for fast (20–40 MeV) neutrons.

4. Designed and/or realized installations, systems:
 - production target for ACCULINNA fragment separator,
 - amplitude generator for Three-body Event Generator for Decays and Direct Reactions (TEG-DDR),
 - analysis scripts for scintillator testing station,
 - analysis code for investigation of dopant inhomogeneity in large-volume scintillators,
 - analysis code for investigation of influence of surface treatment on the overall performance of large-volume scintillators,
 - simulation code for light transport in large-volume scintillators,
 - Monte Carlo simulations of time characteristics of response of a scintillator-based detector,
 - Monte Carlo simulations of response of a scintillator-based detector to a neutron hit.

5. Responsibility for the installations, systems:
 - Modular BC404-based time-of-flight spectrometer for fast neutrons

List of recent publications

6. [1] V.G. Távara, J.D. Ovejas, I. Martel et al. Strong coupling effects on near-barrier $^{15}\text{C} + ^{208}\text{Pb}$ elastic scattering. *Physics Letters B*, 855:138770, 2024.
- [2] S.A. Krupko, S.G. Belogurov, A.A. Bezbakh et al. Design and Performance of the ACCULINNA-2 Fragment-Separator. *Physics of Particles and Nuclei Letters*, 21:902, 2024.
- [3] A.A. Bezbakh, S.G. Belogurov, V. Chudoba et al. Detector array for the ^7H nucleus multi-neutron decay study. *Physics of Particles and Nuclei Letters*, 20:629, 2023.
- [4] A. Graña Gonzalez, H.T. Johansson, O.A. Kiselev et al. Quasi-free (p,2p) reactions in inverse kinematics for studying the fission yield

- dependence on temperature. *Proceedings of FAIR next generation scientists - 7th Edition Workshop — PoS(FAIRness2022)*, 17:419, 2023.
- [5] M. Heil, A. Keli-Heil, L. Bott et al. A new time-of-flight detector for the R³B setup. *The European Physical Journal A*, 58:248, 2022.
- [6] J. M. Boillos, D. Cortina-Gil, J. Benlliure et al. Isotopic cross sections of fragmentation residues produced by light projectiles on carbon near 400A MeV. *Physical Review C*, 105:014611, 2022.
- [7] A. Knyazev, J. Park, P. Golubev, J. Cederkäll, et al. Simulations of light collection in long tapered CsI(Tl) scintillators using real crystal surface data and comparisons to measurement. *Nuclear Instruments and Methods in Physics Research Section A: Accelerators, Spectrometers, Detectors and Associated Equipment*, 1003:165302, 2021.
- [8] J. Park, A. Knyazev, E. Rickert, J. Cederkäll, et al. High-Statistics Sub-Barrier Coulomb Excitation of ^{106,108,110}Sn. In *Proceedings of 13th International Conference on Nucleus-Nucleus Collisions*, 2020.
- [9] J. D. Ovejas, A. Knyazev, I. Martel, et al. Study of the scattering of ¹⁵C at energies around the Coulomb barrier. *Journal of Physics: Conference Series*, 1643:012095, Dec 2020.
- [10] P. Cabanelas et al. Commissioning of the CALIFA Barrel Calorimeter of the R3B Experiment at FAIR. *Journal of Physics: Conference Series*, 1667:012006, Oct 2020.
- [11] P. Cabanelas et al. Performance recovery of long CsI(Tl) scintillator crystals with APD-based readout. *Nuclear Instruments and Methods in Physics Research Section A: Accelerators, Spectrometers, Detectors and Associated Equipment*, 965:163845, 2020.
- [12] A. Knyazev, J. Park, P. Golubev, J. Cederkäll, et al. Tl concentration and its variation in a CsI(Tl) crystal for the CALIFA detector. *Nuclear Instruments and Methods in Physics Research Section A: Accelerators, Spectrometers, Detectors and Associated Equipment*, 975:164197, 2020.
- [13] A. Knyazev, J. Park, P. Golubev, J. Cederkäll, et al. Properties of the CsI(Tl) detector elements of the CALIFA detector. *Nuclear Instruments and Methods in Physics Research Section A:*

Accelerators, Spectrometers, Detectors and Associated Equipment,
940:393–404, 2019.