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Regions near closed shells in areas of the nuclear chart far from stability are very interesting from the point of view of nuclear structure, since a shell model description based on single-particle states can be challenged by collective effects. One of the most interesting regions is the one around the doubly-magic $^{78}$Ni nucleus, with $Z = 28$ and $N = 50$ [1].

The systematics of transitions from the first-excited to ground states of the odd-$A$ $N = 50$ isotones [2,3] is very enlightening, since M1 transitions are expected to be $l$ forbidden, resulting in long half-lives with small transition probabilities [4,5,6]. A more complete understanding of these $l$ forbidden M1 transition could be achieved by extending the systematics. To this end, two complementary experiments were performed at the ISOLDE (CERN) facility and ILL reactor in Grenoble, France.

The nuclei of interest were populated in $\beta$ decay and investigated by fast-timing techniques. The first experiment was aimed at the study the half-life of the first excited state of the $^{83}$As via a $\beta$-decay experiment of $^{83}$Ga at the ISOLDE Decay Station.
In the second experiment, the half-lives of the first excited states in $^{85}$Br and $^{87}$Rb [7] were investigated at ILL, where the parent nuclei, $^{85}$Se and $^{87}$Kr, were transported and mass-separated by the LOHENGRIN is a recoil mass spectrometer.

The presentation will address the analysis of both experiments, discussing the methodologies used and the preliminary results obtained. Additionally, conclusions regarding the systematics of the $l$-forbidden M1 transitions in $N = 50$ isotones will be drawn, highlighting the implications for nuclear structure.

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## ASCII - The Apparatus for Surface Physics and Interfaces at CERN's Ion Implantation Chamber

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The Apparatus for Surface Physics and Interfaces at CERN (ASPIC) was previously installed in the solid-state physics section of the ISOLDE experimental hall, where it operated under ultra-high vacuum conditions (UHV, $\leq 10^{-8}$ mbar). ASPIC enabled studies of metallic surfaces, magnetic thin films, and interface dynamics, and supported experiments using radioactive isotopes and a range of thin-film fabrication and modification techniques. ASPIC is no longer in regular operation at the GLM area, and its development informed the design of the follow-up system.

**The Apparatus for Surface Physics and Interfaces at CERN's Ion Implantation Chamber (ASCII)** represents this next-generation setup and is currently under commissioning. It is designed for tunable ultra-low-energy implantation (
$gtrsim20$ eV) of radioisotopes in UHV conditions down to $\leq 10^{-9}$ mbar. The system enables implantation depth control on the order of a few angstroms and precise placement of probes such as $^{111\mathrm{m}}$Cd and $^{204\mathrm{m}}$Pb into materials ranging from two-dimensional systems (graphene, transition-metal dichalcogenides) to (multi)ferroic compounds, nanoparticles, and topological insulators. A first demonstration of $^{111}$Ag implantation using ASCII was successfully performed at the Universität Göttingen.

The current commissioning and integration work includes the design of an additional differential vacuum chamber (DVC) to ensure UHV integrity within the ASCII chamber itself, as well as engineering measures to meet CERN safety requirements. These measures include a floating equipment cabinet, a rack with segregated power supplies with approved interconnections, and an integrated Faraday cage for the chamber, which handles grounding and electromagnetic shielding. Ongoing tasks concentrate on completing the DVC and vacuum system installation, validating implantation procedures, verifying electrical and grounding arrangements, and finalising the safety interlocks and approvals required for radioactive-ion operation. Once fully commissioned, ASCII will be available to the ISOLDE community as a versatile tool for investigations of surfaces and interfaces in solid-state nuclear condensed-matter physics.

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# Probing the nuclear magnetisation distribution with the Bohr-Weisskopf effect using collinear laser spectroscopy

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