

Lise Meitner Award Ceremony

Welcome

Gerda Neyens
ISOLDE Physics Group Leader
ISOLDE Collaboration Spokesperson

Bjorn Jonson Chalmers



EUROSCHOOL ON EXOTIC BEAMS

organized by the "Instituut voor Kern- en Stralingsfysika, K.U.Leuven" in the framework of the Human Capital and Mobility Programme of the Commission of the European Communities

Leuven, Belgium, September 6 – 10, 1993

DIRECTORS

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GSI, Darmstadt
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FIRST BULLETIN

In the framework of the Human Capital and Mobility Programme, the Commission of the European Communities has created the possibility to set up Euroconferences: "A Euroconference comprises a series of high-level meetings on the same general topic at the cutting edge of scientific or technical knowledge, at which the leading scientists in a specific field are brought together with the youngest scientists in that field...The meetings which would normally last up to five days at a time would continue the discussion over a period of years."

The production and use of energetic radioactive beams is a rapidly developing new field in Nuclear Physics, especially in Europe. Representatives of four European research institutes, namely ISOLDE (CERN, Switzerland), GANIL (Caen, France), GSI (Darmstadt, Germany) and ARENAS³ (Louvain-la-Neuve, Belgium), have introduced a proposal for a Euroschool on Exotic Beams. This proposal has been selected and contract negotiations are in progress. Meanwhile we feel it is necessary to inform you already now on our plans.



Bjorn Jonson

1st EUROSCHOOL on Exotic Beams

Sept. 1993, KU Leuven, Belgium



To calculate the charge radii of ${}^6\text{He}$ or ${}^{11}\text{Li}$ we need to know the charge radii of the cores ${}^4\text{He}$ and ${}^9\text{Li}$ (r_{ch}) and the distances of the cores (ΔR_c) from the center of mass of the corresponding nuclei (${}^6\text{He}$, ${}^{11}\text{Li}$)

$$r_{ch}(\text{core} + 2n) = [r_{ch}^2(\text{core}) + (\Delta R_c)^2]^{1/2}$$

(${}^6\text{He}$) $r_{ch}({}^4\text{He}) = 1.673$ (known for many years back)

$\Delta R_c({}^4\text{He})$ we can take from exp. paper [T. Aumann..., PRC 59 (1999) 1252] where this number has been obtained from cluster non energy weighted sum rule

$$S_{clus}^{NEW} = \frac{3}{4\pi} Z_c^2 e^2 (\Delta R_c({}^4\text{He}))^2 \Leftrightarrow \Delta R_c^{exp}({}^4\text{He}) = 1.12 \pm 0.13 \text{ or theor. calculations}$$

$$[B.V. Danilov..., NPA 632 (1998) 383] \Leftrightarrow \Delta R_c^{th}({}^4\text{He}) = 1.2$$

$$r_{ch}^{exp}({}^6\text{He}) = 1.944 \div 2.088 \text{ fm}$$

$$r_{ch}^{th}({}^6\text{He}) = 2.059 \text{ fm}$$

(${}^{11}\text{Li}$) $r_{ch}({}^9\text{Li}) = 2.24 \pm 0.04$ [G. Eward..., PR 94 (2005) 039901]

$\Delta R_c({}^9\text{Li})$ is not known experimentally. From theor. paper [Ch. Forsgren..., NPA (2002) 48] we can get two values: $\Delta R_c^{th}({}^9\text{Li}) = 1.08$ or $\Delta R_c^{th}({}^9\text{Li}) = 0.8$, depending on correlations in ${}^{11}\text{Li}$ WF (unknown from exp.).

$$r_{ch}^{th}({}^{11}\text{Li}) = 2.49 \pm \dots \text{ fm} \quad \text{or} \quad r_{ch}^{th}({}^{11}\text{Li}) = 2.38 \pm \dots \text{ fm}$$



Piet Van Duppen

KU Leuven



PhD defense, 1985



Mark and Piet in Japan, 1991

An On-Line Laser Ion Source Based on Resonance Photoionization in a Gas Cell

L. Vermeeren, N. Bijmens, M. Huyse, Y. A. Kudryavtsev,* P. Van Duppen,[†] and J. Wauters

Instituut voor Kern- en Stralingsfysika, K.U. Leuven, Celestijnenlaan 200 D, B-3001 Leuven, Belgium

Z. N. Qamhieh, P. Thoen, E. Vandeweert, and R. E. Silverans

Laboratorium voor Vaste Stof-fysika en Magnetisme, K.U. Leuven, Celestijnenlaan 200 D, B-3001 Leuven, Belgium

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Nuclear Instruments and Methods in Physics Research B 126 (1997) 66–72

Laser ion sources for on-line isotope separators

Piet Van Duppen *

Instituut voor Kern- en Stralingsfysika, University of Leuven, Celestijnenlaan 200 D, B-3001 Leuven, Belgium



1988



2006

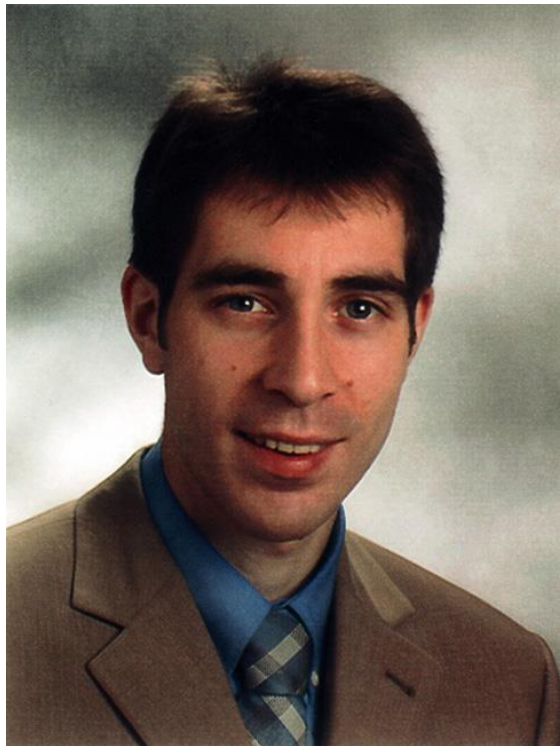
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Thanks for convincing me to start with
laser spectroscopy at ISOLDE !

Klaus Blaum



2002-2004
Research Fellow at CERN
ISOLTRAP
COLLAPS

2004 Gustav-Hertz-Prize
for his outstanding work on the mass determination
of unstable atomic nuclei

COLLAPS Collaboration 2019, Heidelberg



Thank you
Klaus, Piet and Bjorn,
not only for shaping the ISOLDE facility
and its research program
but also for your contributions in shaping my scientific career.
It is a pleasure to work with you.