



10th Nuclear Physics Workshop

Marie and Pierre Curie



24-28 September 2003, Kazimierz Dolny

Scientific program

I. W E D N E S D A Y (2 4 . 0 9) A F T E R N O O N

- **Opening of the Workshop**

15.00 Johann Bartel and Krzysztof Pomorski: *Welcome address.*

15.15 Hubert Flocard: *Research on novel options for nuclear energy production and waste management: The French public programme.*

16.00 Philippe Chomaz: *Phase transitions in finite systems.*

16.30 Coffee break

- **Clusters and fermion aggregates**

16.50 Klaus Dietrich: *Mesoscopic atoms.*

17.20 Christian Beck: *Alpha-clustering, superdeformation and quasimolecular resonances.*

17.50 Matthias Brack: *Periodic orbit theory including spin degrees of freedom.*

II. T H U R S D A Y (2 5 . 0 9) M O R N I N G

• High spin physics

- 8.45 Marie-Genevieve Porquet: *High-spin structure of neutron-rich nuclei produced by heavy-ion induced fission.*
- 9.15 Andrzej Gózdź: *Generalized quantum rotor and its symmetries.*
- 9.45 Bertrand Rosse: *Structure of polonium isotopes at high spin with RFD + EUROBALL.*
- 10.00 Przemysław Olbratowski: *Nuclear chiral rotation studied with self-consistent methods.*

• Nuclear shell model

- 10.40 Andres Zuker: *The need of three-body forces in nuclei.*
- 11.10 Faical Azaiez: *Shell structure changes in neutron rich nuclei.*
- 11.40 Emil Betak: *Pre-equilibrium cluster emission.*
- 12.10 Magdalena Zielińska: *Coulomb excitation of ^{150}Nd .*
- 12.25 Joanna Sykut: *New set of the relativistic mean field theory parameters.*

III. T H U R S D A Y (2 5 . 0 9) A F T E R N O O N

• Nuclear structure and stability (a)

- 15.00 Jean-Francois Berger: *Structure of superheavy nuclei with the Gogny force.*
- 15.30 Jean Libert: *Microscopic approach of superdeformation in the actinide region.*
- 16.00 Johann Bartel: *Local properties in rotating nuclei.*
- 16.15 Christelle Schmitt: *Investigation of dissipation in nuclear fission.*
- 16.30 Coffee break
- 16.50 Philippe Quentin: *Pairing correlations at high angular momenta: Collective aspects and the effect of particle number conservation.*
- 17.20 Tatiana Mikhailova: *Dissipation of collective energy in the approach phase of nucleus-nucleus collision*
- 15.35 Kamila Sieja: *Delta-pairing strengths and nuclear masses.*
- 17.50 Katarzyna Mazurek: *Spontaneous fission life times of transuranic nuclei with LSD model.*
- 18.05 Zsolt Podolyak: *Studies of neutron-rich nuclei.*
- 18.20 Igor Ushakov: *Isovector l -forbidden transitions in odd-nuclei.*
- 18.35 Marek Miśkiewicz: *Semiclassical analysis of point symmetries in generalized rotor.*

IV. FRIDAY (26.09) MORNING

- **Mean field and beyond**

- 8.45 Paul-Henri Heenen: *The shape coexistence description by mean-field and beyond mean-field methods.*
- 9.15 Luis Robledo: *Beyond mean field approximations with effective forces.*
- 9.45 Jacek Dobaczewski: *Mean-field studies of exotic nuclei.*
- 10.15 Coffee break
- 10.40 Aurel Bulgac: *Density functional approach to superfluid nuclei.*
- 11.10 Kenichi Matsuyanagi: *Static and dynamic non-axial octupole deformations suggested by Skyrme-HFB and selfconsistent RPA calculations.*
- 11.25 Tomas Rodriguez: *Influence of the constraining in quadratic operators on calculations beyond the mean field in magnesium isotopes.*
- 11.40 Michał Warda: *Localization of the single-particle states in nuclear fission.*
- 11.55 Sophie Peru-Desenfans: *Giant resonances in exotic spherical nuclei with the HF+RPA approach.*
- 12.10 Paul Stevenson: *1-, 2- and 3-D calculations of giant resonances with TDHF.*
- 12.25 Karim Bennaceur: *Compressibility, effective mass and density dependence in new Skyrme forces.*

V. FRIDAY (26.09) AFTERNOON

- **Nuclear structure and stability (b)**

- 15.00 Ken-ichiro Arita: *Shell structures and periodic orbit bifurcations in deformed nuclei, dependence on surface diffuseness and the effect of spin-orbit coupling.*
- 15.30 Jerzy Dudek: *Tetrahedral and other exotic symmetries in nuclei.*
- 16.00 Nicolas Schunck: *Various theoretical evidences for tetrahedral and octahedral symmetries in atomic nuclei.*
- 16.15 Leszek Próchniak: *Pairing degrees of freedom and collective quadrupole dynamics.*
- 16.30 Coffee break
- 16.50 Ingemar Ragnarsson: *The nuclear mass at finite angular momenta!*
- 17.20 Krystyna Zając: *The isoscalar coupling scheme in nuclear collective excitations.*
- 17.35 Miguel Fernandez: *Generalized BCS ansatz for pairing correlations in superconducting grains.*
- 17.50 Herve Molique: *Statistical approach to the nuclear pairing problem.*
- 18.05 Ernest Grodner: *DSAM life-times measurements of ^{132}La hypothetical chiral bands.*
- 18.20 Julian Srebrny: *$B(E2)$ and $B(M1)$ transition probabilities as a test of supposed chiral band structure in ^{132}La .*
- 18.35 Andrzej Staszczak: *Chirally symmetric effective field theory for nuclei.*
- **Special lecture at night**
- 20.00 Lis Brack-Bernsen: *The Babylonian Mathematics and Prediction of the Lunar Phenomena.*

VI. S A T U R D A Y (2 7 . 0 9) M O R N I N G

• Nuclear fusion, fission and evaporation (a)

- 8.45 Władysław J. Świątecki: *The physics of nucleus-nucleus fusion.*
9.15 Joe Natowitz: *Coalescence, caloric curves, critical (?) behavior.*
9.45 Hans-Jurgen Krappe: *Analytic results on level densities.*
10.15 Coffee break
10.40 Jan Styczeń: *Deformation in light nuclei.*
11.10 Francis Hanappe: *Dynamics of capture reactions in the superheavy region.*
11.40 Neil Rowley: *Measuring capture cross sections for heavy-element production.*
12.10 Yoshihiro Aritomo: *Dynamical calculation for fusion-fission process in superheavy mass region.*
12.25 Janusz Skalski: *Selfconsistent fusion barriers at near-barrier energies.*

VII. S A T U R D A Y (2 7 . 0 9) A F T E R N O O N

• Nuclear fusion, fission and evaporation (b)

- 15.00 Artur Dobrowolski: *Fusion barriers and cross-sections in semi-classical extended Thomas-Fermi approximation.*
15.15 Łukasz Świdorski: *How many fusion barriers?*
15.30 Herbert Faust: *Fragment excitation, moments of the kinetic energy distributions and neutron evaporation in nuclear fission calculated from a random excitation.*
15.45 Vicente Martin: *Thermal shape fluctuations in the description of hot nuclei.*
16.00 Paolo Napolitani: *Structural effects in the isotopic distributions of the residues of highly excited systems*
16.15 Paweł Mierzyński: *Nuclear periphery in mean-field models.*
16.30 Coffee break

• Exotic nuclear and celestial processes

- 16.50 Jerzy Jastrzębski: *Neutron density distribution deduced from antiprotonic atoms.*
17.20 Zdzisław Łojewski: *State dependent pairing and fission half-lives of heavy nuclei.*
17.35 Aleksander Olszewski: *Irreducible representations of double point groups within the harmonic oscillator basis.*
17.50 Michał Kowal: *Stability of heaviest atomic nuclei in new macroscopic energy model.*
18.05 Marek Gózdź: *Neutrino-less double beta decay constrained by the existence of large extra dimensions.*
18.20 Piotr Magierski: *Thermodynamic properties of the neutron star crust.*

• Concluding remarks