## QPTn9 - Padova

### 22-25 May 2018

**Start Time:** 8:30 AM  
**Time Interval:** 30 (in minutes)

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<tr>
<th>Place</th>
<th>Aula Nievo - Palazzo Bo</th>
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<tr>
<th>Time</th>
<th>Tue 22</th>
<th>Wed 23</th>
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<tbody>
<tr>
<td>8:30 AM</td>
<td>Registration</td>
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<td>9:00 AM</td>
<td>Opening</td>
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<tr>
<td>9:30 AM</td>
<td>Session 3</td>
<td>Casten &amp; Pietralia</td>
<td>Zhang</td>
<td>Cejnar</td>
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<td>10:00 AM</td>
<td>Garcia-Ramos</td>
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<td>11:00 AM</td>
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<td>Session 6</td>
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<td>Bijker &amp; Perez</td>
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<td>Session 2</td>
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<tr>
<td>3:00 PM</td>
<td>Leviatan &amp; Arias</td>
<td>Otsuka</td>
<td>Vretenar</td>
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<td>Welcome Drink</td>
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### Session 1 | 09:15  
**Transitional nuclei and shape coexistence**

**J.-E. García-Ramos**  
*Both sides of the story: Shape coexistence and Quantum Phase Transitions*

- K. Wrzeszcz-Lipska  
  Experimental evidences of shape coexistence in the Z+82 and A=100, N=60 regions

- V. Werner  
  Prolate-oblate shape coexistence in 5e isotopes from isomer spectroscopy

- M. Spieker  
  Shape coexistence and collective low-spin states in 112,114 Sn studied with the (p+gamma) DSA coincidence technique and SONEC/HORUS

- D. Vretenar  
  Shape-coexistence vs QPT in the rare-earth region

- G. Lévai  
  Nuclear shape phase transitions described in terms of the sextic oscillator

- P. Buganu  
  Bohr model description of the critical point for the first order shape phase transition

- P. Georgoudis  
  Coexistent Shapes in the Bohr Hamiltonian: Limitations and phenomenological Challenges

- S. Karampagia  
  Quantum Phase Transitions within the Shell Model

- M. Boyukata  
  Signature of the γ-softness in nuclei at the Se-Ge region

### Session 2 | 14:30  
**Symmetries & shapes in nuclei**

**A. Levitran**  
*More (Shapes) is Different (Symmetries)*

- K. Nomura  
  Structure of Cd isotopes within the beyond-mean-field IBM

- N. Gavrielov  
  Partial dynamical symmetry and the phonon puzzle in Cd isotopes

- J.E. García-Ramos  
  The phase diagram of the extended Agapsi model

- R.F. Casten  
  New Predictions of the Proxy-GSU(3) Approximate Symmetry

- J. Dutta  
  Nuclear tetrahedral and octahedral symmetries: New research lines after the first identified case

- P. Van Isacker  
  Higher-rank discrete symmetries in the IBM

- J. Cseh  
  Phases of clustered nuclei

- R. Bijker  
  QPT in cluster nuclei

- M. Sambataro  
  Quartet structure of N=Z nuclei in an IBM formalism: 126Si as a nucleus at the U(5)-Ubar(SU(3)) phase-transitional point

- N. Minkov  
  Nuclear shape effects at the border of atomic energy scale

### Session 3 | 09:00  
**Empirical aspects of Quantum Phase Transitions**

**R.F. Casten**  
*Caveat: Dangers lurking in assessing nuclear structure models*

- N. Pietralla  
  Quest for common semantics a few remarks to 'beta-vibration','shape coexistence',and 'phase transition'

- P. Kissinger  
  The low-ν boundary of the N=90 phase transition 146Ce near X(5)

- C. Petrace  
  First observation of collective rotation of an oblate nucleus at very high spin

- D. Bucurescu  
  Nuclear level density as a signature of shape phase transitions

- V. Zelevinsky  
  Shell model, level density and phase transitions

- P. Van Isacker  
  Correlations between nuclear charge radii, E0 transitions and summed M1 strengths

- J. Kleemann  
  Decay characteristics of the scissors mode in the QPT and 0νββ-partner isotopes 119Nd and 117Sm

- T. Beck  
  E2 strength of the Scissors Mode and evolution of F-vector quadrupole charges over a shape phase transition

- R.V. Jolos  
  Excitation energy dependence of the moment of inertia of well-deformed nuclei

### Session 4 | 14:30  
**Shell evolution**

**T. Otsuka**  
*Underlying mechanism of shape evolution and the Quantum Phase Transition and its manifestations*

- S. Leoni  
  Appearance of shape isomerism in the Ni isotopic chain

- N. Pietralla  
  Shape coexistence in 96Zr

- W. Wirt  
  Be(E2) measurement in 98Zr and its relation to the QPT in Zr nuclei due to Shell Evolution

- P. Singh  
  Lifetime measurements in 98Zr and shape phase transition in Zr isotopes

- A. Vitturi  
  Two-particle transfer reactions: a key tool for the study of phase transitions in nuclei

- S. Siels  
  Studying shape staggering in Hg isotopes using Laser spectroscopy

### Session 5 | 09:00  
**Alternative approaches to phase transitions**

**Yu Zhang**  
*Alternative approaches to phase transitions*

- R. Budaca  
  Tilted-axis webbing in odd-mass nuclei

- M. Boyukata  
  Quantum phase transitions in odd-A nuclei: The effect of the odd particle along the critical line

### Session 6 | 11:00  
**Phase transitions in atomic, molecular and other domains**

**R. Bijker**  
*An Overview of QPT and ESQPT in Molecular Systems*

- F. Pérez-Bernal  
  Saddle point localization of molecular wavefunctions

- G. Ortiz  
  Topological superfluid phase with repulsive fermionic atoms

- P. Pérez Fernández  
  Relationship between the ESQPT and the thermal phase transition in the Dicke model

- Q. Wang  
  Excited-state quantum phase transition and quantum speed limit

- G. Stellin  
  Breaking and restoration of rotational symmetry in the low-energy spectrum of light alpha-conjugate nuclei on the lattice

### Session 7 | 14:30  
**Density functional approaches to phase transitions**

**D. Vretenar**  
*Introduction*

- N. Sandulescu  
  Signature of alpha-like quartet phase transition in N=2 nuclei

- P. Marevic  
  Nuclear clustering with and beyond the relativistic mean-field framework

- J. Luis Igido  
  Symmetry Conserving Configuration Mixing description of odd-mass nuclei and a short discussion on pairing transitions

- K. Nomura  
  Octupole correlations in neutron-rich odd-mass nuclei

- D. Vretenar  
  Quantum shape-phase transitions in odd-mass nuclei

- Q. B. Chen  
  Shape evolutions in Gd isotopes studied with five-dimensional collective Hamiltonian based on covariant DFT

- N. Shimizu  
  Shell-model study in A=130 nuclei and chiral doublet of 128Cs

- P. Zhao  
  Nuclear multiple chirality in Rh-106: a manifestation of triaxial shape coexistence

### Session 8 | 09:00  
**Excited states phase transitions**

**P. Cejnar**  
*Excited state quantum phase transitions: Introduction*

- W. Kopylov (1)  
  Excited state quantum phase transition in the Lipkin-Meshkov-Glick model and its influence on the non-adiabatic dynamics

- W. Kopylov (2)  
  Smearing out of the excited state quantum phase transition properties in the dissipative LMG model and their restore by delayed feedback control
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<thead>
<tr>
<th>Speakers</th>
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<tbody>
<tr>
<td>L. Santos</td>
<td>Nonequilibrium quantum dynamics: from full random matrices to real systems</td>
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<tr>
<td>M. Kloc</td>
<td>Excited state quantum phase transitions and quantum quench dynamics in an extended Dicke model</td>
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<td>M. Šindelka</td>
<td>Excited state quantum phase transitions studied from a non-Hermitian perspective</td>
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<td>P. Stránský</td>
<td>Exceptional points for randomly perturbed critical Hamiltonians</td>
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<td>R. Jolos</td>
<td>Analytical description of the excited state phase transition to octupole deformed shape in alternating parity bands</td>
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<td>A. Qureshi</td>
<td>Landau-Zener transitions in the Pechukas-Yukawa formalism under the influence of Brownian noise</td>
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