



**OAW**

Österreichische Akademie  
der Wissenschaften

# INVITATION

HEPHY-SMI seminar on  
fundamental interactions and symmetries

## PIETRO CARADONNA

Stefan Meyer Institute for Subatomic Physics

**Evidence for Small Scale Structures for helium  
by positron Impact**

### ABSTRACT:

A multitude of new results are presented for low energy positron collisions with helium obtained using the Positron Beamline situated in Canberra, at the Australian National University. A detailed study of the non-positronium cross-section has revealed indirect evidence of two resonance-like features in the  $2^1S$  and the  $2^1P$  excitation cross-sections, as predicted by close-coupling theories. Also presented are two Wigner cusp-like features along the positronium (Ps) formation cross-section, one at the  $2^1S$  (20.6 eV) and the other at the  $2^1P$  (21.2 eV) excitation thresholds. These cusps are associated with coupling between the Ps formation and the  $2^1S$  and the  $2^1P$  excitation channels. The Ps formation cross-section also displays two depression-like features above the direct ionisation threshold (24.6 eV), one centered about 24.95 eV and the other centered about 25.8 eV. These features are in accord with the depression-like features that appear in the partial Ps( $2s$ ) and Ps( $2p$ ) close-coupling cross-section calculations.

### DATE:

Wednesday, 07.11.2012 - 16:30 s.t.

### VENUE:

Stefan Meyer Institute  
for subatomic Physics  
1090 Wien, Boltzmanngasse 3  
Seminarraum 2.08

<http://www.smi.oeaw.ac.at/groups/hephysmiseminar/>



Stefan-Meyer-Institut  
für subatomare Physik



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