

3<sup>rd</sup> International Conference on**THEORETICAL AND CONDENSED MATTER PHYSICS**

October 19-21, 2017 New York, USA

**The gailitis resonances conclusion in low energy 3-body scattering system****Chi Yu Hu**

California State University, USA

The super computer has advanced enough at present time to enable the exact solution of a low energy quantum three body colliding system. A six open channel S-State  $e + H$  scattering system was carried out numerically. The calculation involves the solution of nearly half a million coupled linear equation system. That provides the precise information of all open channels. Here, only the behavior of the resonant channels near the resonant energies are described:  $p + Ps(n=2) \rightarrow e + H(n < 2)$ . The Gailitis resonance appear above the  $Ps(n=2)$  threshold. Normally the  $p$  moves in the smooth attractive field of the induced electric dipole polarization potential. When the  $p$  approaching certain distances from  $Ps(n=2)$  when its energy is able to flipping the electric dipole, resonance occurs. The resonance begins suddenly when the attractive field turns strong repulsive on  $p$  due to the flipping of the dipole. In quantum description, the wave function of  $p$  turns into a "wave packet" after losing its energy. The wave packet is a probability density distribution of finding the  $p$ . The most dense part of the wave packet is the center of the packet. The center of the wave packet remains stationary relative to  $Ps$ . The wave packet spreads thin in all directions including the direction towards  $Ps$  during its life time. Near the end of the life, sudden strong attraction is imposed on  $p$  ( Note this is nature's pick-up tool). During the life time, the Gailitis Resonances may decay into anyone of its open decay channels. For the Gailitis Resonance:  $[p + Ps(n=2)] \rightarrow e + H(n < 2)$  The cross sections for all the decay channels were calculated. They can be very useful for experiments trying to obtain more antihydrogen.

**Biography**

Chi Yu Hu retired from California State University in 2006. She had taught at the university for more than three decades, challenging and preparing her students in the field of physics. Prior to joining the faculty at CSU, Dr. Hu was a research associate at St. John's University. She has also been a visiting professor at UCLA through the National Science Foundation. Dr. Hu pursued her own education first in Taiwan. She received a Bachelor of Science in 1955 from National Taiwan University. After coming to the United States, she attended the Massachusetts Institute of Technology and earned a Ph.D. Throughout her career in education, she has contributed to professional journals and scientific papers. She has maintained membership with the American Physical Society.

chiyu.hu@csulb.edu

**Notes:**