Canadian Association
of Physicists

Association canadienne des
physiciens et physiciennes

Contribution ID: **1927**   Type: **Poster (Non-Student) / affiche (non-étudiant)**

POS-49 - Fourth order superintegrable systems separating in Polar Coordinates

Wednesday 31 May 2017 18:06 (2 minutes)

We present all real quantum mechanical potentials in a two-dimensional Euclidean space that have the following properties: 1. They allow separation of variables in polar coordinates, 2. They allow an independent fourth order integral of motion, 3. Their angular component $S(\theta)$ does not satisfy any linear ODE. We show that $S(\theta)$ satisfies a nonlinear ODE that has the Painlevé property. The classical analog, including the generating algebra of the integrals of motion, is considered as well.

Author: Dr ESCOBAR, Adrian (CRM, University of Montreal)

Co-authors: Dr VIEYRA, Juan Carlos (CRM University of Montreal); Prof. WINTERNITZ, Pavel (CRM, University of Montreal)

Presenter: Dr ESCOBAR, Adrian (CRM, University of Montreal)

Session Classification: DTP Poster Session | Session d'affiches DPT (4)

Track Classification: Theoretical Physics / Physique théorique (DTP-DPT)