



Mathematical Physics

# Families of superintegrable Hamiltonians constructed from exceptional polynomials

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We introduce a family of exactly-solvable two-dimensional Hamiltonians whose wave functions are given in terms of Laguerre and exceptional Jacobi polynomials. The Hamiltonians contain purely quantum terms which vanish in the classical limit leaving only a previously known family of superintegrable systems. Additional, higher-order integrals of motion are constructed from ladder operators for the considered orthogonal polynomials proving the quantum system to be superintegrable.

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