Stieltjes–Fekete problem, degenerate orthogonal polynomials and Painlevé equations

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We study the set of double eigenvalues of a one parameter family of quartic/sextic anharmonic oscillators and we show that, under suitable rescaling, they behave as the poles of rational solutions of Painleve' equations.

Joint work with 1. Marco Bertola and Eduardo Chavez Heredia and 2. Marco Bertola and Dmitry Rachenkov.