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SEMINAR OF NUMERICAL ANALYSIS

➢ **WEDNESDAY 28 OCTOBER 2015 - ROOM MA A1 10 - 16h15**

Dr. Harri HAKULA (Aalto University, Finland) will present a seminar entitled:

"On Pointwise Convergence of Legendre Expansions"

Abstract:

Despite considerable progress in the standard norm estimates there are still open theoretical questions about the local behavior and the pointwise convergence of the p-version of the finite element method in one and higher dimensions. In this talk the focus is on the issues arising from basic numerical computation of the Legendre expansion of a specific class of functions, namely the piecewise analytical ones. We present a new theorem for the pointwise convergence of the one-dimensional expansion, including a discussion of the related constants. The high reliability of computations is achieved through novel application of exact arithmetic within computer algebra systems. The numerical experiments illustrate that in many cases the asymptotic rates are reached at polynomial orders which are beyond the ones used in engineering computations. The examples chosen do not require any specialist knowledge from the audience.
This is joint work with Ivo Babuska.

Lausanne, 8 October 2015/FN/cr

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