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Symmetric Polyconvexity in Higher Dimensions

In this work, we aim to characterize symmetric polyconvex functions in higher dimensions. Building on the characterization provided by Boussaid et al., for $2d$ and $3d$ cases, we extend their technique to higher dimensions to provide a characterization of symmetric polyconvex functions. Our main result shows that a function is symmetric polyconvex if and only if it can be expressed as a convex function of the matrix and its second-order minors, having a non-increasing behavior with respect to the variable of on second-order minors. The concept of S-positive semi-definite matrices is also introduced and analyzed and used as a main ingredient in the characterization. Moreover, this characterization allows us to identify the class of symmetric polyconvex quadratic forms, and shows that there is no non trivial symmetric poly-affine function.

Ort: Mathematik Ost, 40.03.003/Zoom   Zeit: Mittwoch, 29.01.2025 um 10:30 Uhr

You are cordially invited to this lecture. The speaker will be there in person. A hybrid meeting is possible. Please request the link from anja.schloemerkemper@uni-wuerzburg.de.

gez. Anja Schlömerkemper