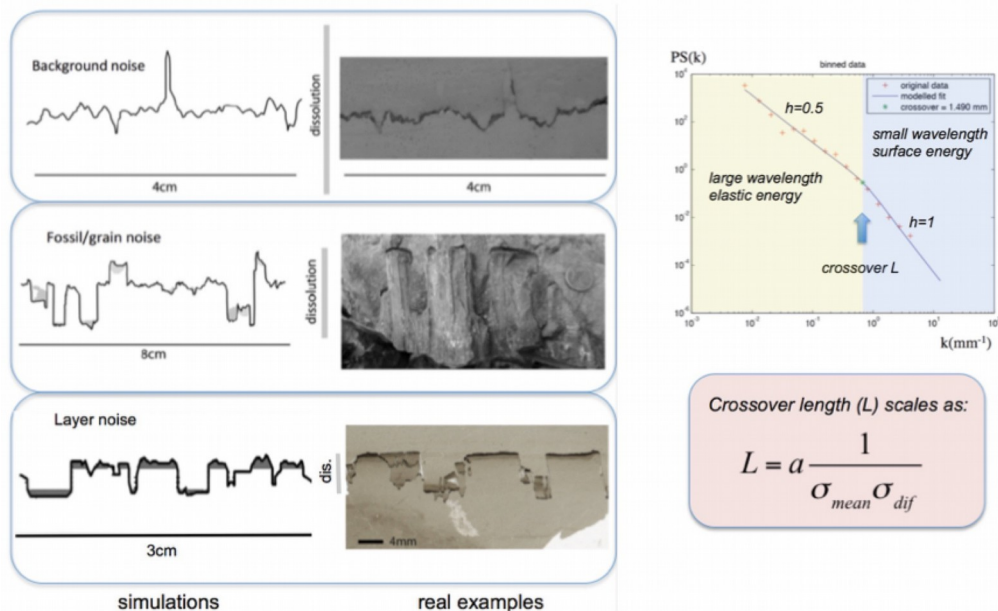


Stylolites: from dynamic roughening to stress inversion and compaction histories

Workshop and fieldtrip (1 day)

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Stylolites are rough dissolution seams that develop in sedimentary rocks (mainly limestones) during compaction and accommodate layer parallel shortening in fold and thrust belts. Stylolites have been at the center of recent research to understand their initiation, their roughness growth, their use as stress inversion tools (direction and magnitude), their use as indicators for compaction and their permeability. In this workshop we will focus on these different aspects with special emphasis on roughness growth, stress inversion, compaction estimates and classification with hands on thin-sections, modeling (Elle) and inversion (using matlab). Finally we will have a half-day field trip to see tectonic and sedimentary stylolites live in the Swabian Alp and at Haigerloch.



Left hand side: different stylolite families that develop as a function of the initial noise (heterogeneity) in the system, simulations and real examples. Right hand side: stylolite stress inversion in matlab using FFT, formula for the inversion.

Participants are also encouraged to bring their own samples/thin-sections/pictures and to discuss further research.