

## **POPULAR SCIENTIFIC SUMMARY**

**DOKTORAL CANDIDATE:** Jacqueline Elisabeth Reber Vettiger

**DEGREE:** Philosophiae Doctor

**FACULTY:** Faculty of Mathematics and Natural Sciences

**DEPARTMENT:** Geosciences

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**DISSERTATION TITLE:** Sheath folds in simple shear: An analytical and experimental study

### **POPULAR SCIENTIFIC SUMMARY:**

Sheath folds are peculiar looking folds with a complex three-dimensional shape resembling a cone. These folds occur in many different rock types and are often associated with shear zones. They are considered as a potential source of information for a kinematic and mechanical interpretation of shear zones. Even though sheath folds have been used to infer strain magnitude, bulk strain, and shear sense in shear zones, little is known about the relation between the cause of the fold, the amount of strain, the bulk strain, and the resulting shape of the fold.

The aim of this doctoral thesis is to investigate the formation and evolution of sheath folds in simple shear and obtain a better understanding of how the initial configurations, leading to the fold, manifest themselves in the resulting fold shape, and ultimately, how reliable the information obtained from sheath folds is. With a combined analytical and experimental approach, a new formation mechanism for sheath fold formation is tested and a wide parameter space investigated.