

# LEAST SQUARES FINITE ELEMENT METHOD FOR A NONLINEAR STOKES PROBLEM IN GLACIOLOGY

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## ABSTRACT

In this paper, we consider a Stokes problem that arises in the study of ice sheets in glaciology. Previously, ice sheets have been modeled by a simplification of the Navier-Stokes equations through length scale analysis. Thanks to the increase in computational power, it is now interesting to solve the Stokes problem without these simplifications. We first use the Picard or Newton method to deal with the nonlinearity of this problem and then use the least squares finite element method to find the weak solution of the resulting linear problem.

## REFERENCES

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