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## Hydrodynamics, Carbohydrates ... and the Vikings

Hydrodynamic methods play a huge role in our understanding of the molecular size, conformation and stability of macromolecules in a watery environment. This applies particularly to large polymers of carbohydrate and their optimisation for use in the biopharma and food industries, especially when combined with chemical characterisation technologies as championed by Professor Paulsen's team at Oslo. And, surprisingly, polymers of carbohydrate are now very much relevant to one of the best known exports from Norway - the Vikings - in terms of (i) the huge problem of cellulose decay and replacement in archaeological ships like the Oseberg and (ii) the glycoconjugate commonly known as DNA.