1020-92-62   **Peter Røgen*** (`Peter.Roegen@mat.dtu.dk`), Department of Mathematics, Matematiktorvet, Building 303, Technical University of Denmark, DK-2800 Kgs. Lyngby, Denmark. *Mathematical challenges in description and classification of protein structures.*

Proteins are long chain molecules that fold into beautiful and complicated structures before fulfilling their functions in the living organisms. This talk focus on the mathematical challenges involved in bringing classification of protein native structures from relative comparison to known examples to absolute description of each structure - one step up the scientific evolutionary ladder.

   In the talk, I will shortly introduce some of the reduced mathematical representations of protein backbones and say a few words on similarity measures on the space of protein structures. The main focus will be on how to use the writhe and some of its generalizations (generalized Gauss integrals) to give the best possible pseudo metric on the space of all known protein folds. (Received August 10, 2006)