A four-year computational Ph.D. position on "MD modelling of unfolded proteins in aging nuclear pores" is available at the University of Groningen, The Netherlands.

Description: The Nuclear Pore Complexes (NPCs) embedded in the nuclear envelope are the main sites of selective transport from and to the nucleus. Their function as a gateway to the cell's chromatin is crucial to the signalling events that lead to the production of new proteins in a timely and controlled fashion. Many of the key steps in cell cycle regulation also build on selective entry of signal molecules into the nucleus. NPCs from aged tissues were reported to be less selective, more 'leaky' and this is expected to have major implications on the cell's physiology.

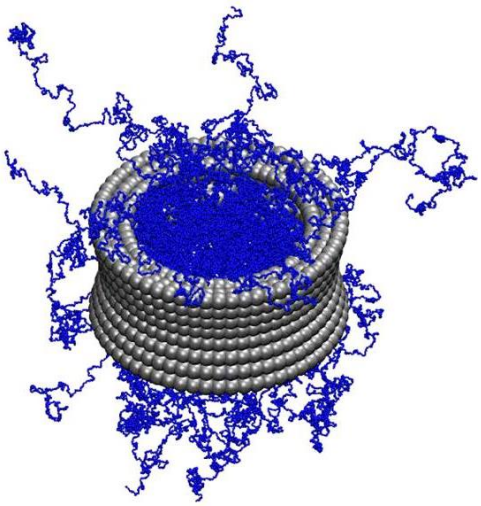

Figure 1. Coarse-grained one-bead-per-amino-acid molecular dynamics model of the NPC.

In a combined experimental/ modelling study we will quantify the relative abundance of the NPC components and posttranslational modification in Saccharomyces cerevisiae as a function of chronological and replicative ageing. We will use these data in a recently developed coarse-grained one-bead-per-amino-acid molecular dynamics model of the NPC. Based on the modelling results, predictions will be formulated how the observed changes in NPC structure and NPC function may be linked.

Requirements: The Ph.D. candidate should hold an M.Sc. degree in (applied) physics, chemistry, materials science or mechanical engineering. He/she should have affinity with the development of computational models for understanding materials mechanics and (bio)physical phenomena. Prior experience with molecular dynamics (MD) is preferred.

Conditions: The position comes with full funding for four years (subject to satisfactory progress).

Applications: For information and applications contact Prof.dr.ir. P.R. Onck, (http://www.rug.nl/staff/p.r.onck) at tel. +31503638039 or p.r.onck@rug.nl.