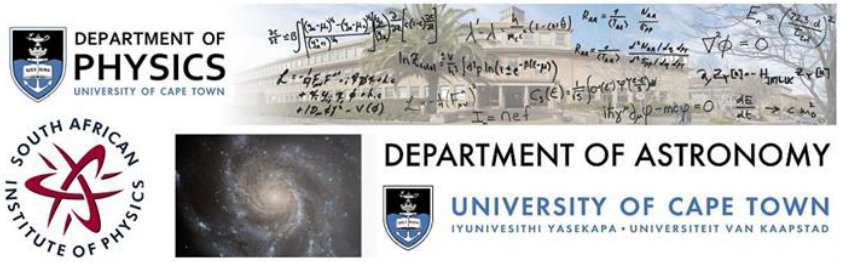

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Simple models for cytoskeleton

Thursday, 7 July 2016 11:10 (20 minutes)

Abstract content
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The mechanical properties of a cell certainly depend on the type of filaments of which the cytoskeleton is composed. But how these are linked into networks also plays a role, together with the geometry the constraining cell membrane or wall cause. In this presentation we address these aspects in simple models for the elastic and geometrical properties of the cytoskeleton. The distribution and orientation of filaments within the confining region also vary with position within the cell - for example, recent molecular dynamics simulations show that confinement affects the orientation and distribution of filaments within the cell [1]. We introduce a monomer ensemble technique [2], and discuss the role of membranes or cell walls on the elastic. Finally, the role and type of cross-linking in such systems will be discussed.

[1] Azari, A. & Müller-Nedebock, K. K. Entropic competition in polymeric systems under geometrical confinement. EPL 110, 68004 (2015).
[2] Pasquali, S. & Percus, J. K. Mean field and the confined single homopolymer. Molecular Physics, 107(13), 1303 (2009).

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