

Contribution submission to the conference Regensburg 2007

**Diatoms - the source of biotribological inspiration for novel 3D MEMS** — ILLE C. GEBESHUBER<sup>1</sup> and •RICHARD M. CRAWFORD<sup>2</sup>

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Diatoms are single-celled organisms with rigid parts in relative motion at the micrometre scale and below. They produce interlocked hydrated silica structures with high precision. These micromechanical parts has been evolutionarily optimized during the last 150 million years or more. It is suggested that MEMS/NEMS researchers meet with diatomists to discuss future common research attempts regarding biomimetic ideas and approaches for novel and/or improved MEMS and NEMS with optimized tribological properties [1,2].

[1] Gebeshuber I.C. and Crawford R.M. (2006) Micromechanics in biogenic hydrated silica - hinges and interlocking devices in diatoms, Proc. IMechE Part J: J. Eng. Tribol. 220(8), 787-796

[2] Gebeshuber I.C., Stachelberger H. and Drack M. (2005) Diatom bionanotribology - Biological surfaces in relative motion: their design, friction, adhesion, lubrication and wear, J. Nanosci. Nanotechnol. 5(1), 79-87

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