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Measurements of the momentum flux from a low-temperature plasma to a surface¹

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The forces that low-temperature plasmas exert on surfaces in contact with the plasma have never been a significant topic. The reason might be the smallness of such forces and the expected difficulties in their measurement. Therefore, only in cases of special plasmas which were designed for the generation of directed momentum (in particular electric space propulsion), force measurements have been reported². Recently, our group demonstrated that the forces related to plasma-wall interactions are experimentally accessible with some effort³. This presentation overviews our experimental approaches in the design of force measuring probes and reports on recent measurements with probes that have been integrated into a plane wall. The observations and prospects for an application as novel plasma diagnostic⁴ are discussed.

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²G. Makrinich and A. Fruchtman, **Phys. Plasmas** 21, 023505 (2014)

³Th. Trottenberg, Th. Richter, and H. Kersten, **Eur. Phys. J. D** 69, 91 (2015)

⁴U. Czarnetzki and T. V. Tsankov, **Eur. Phys. J. D** 69, 236 (2015)