Abstract

In the Standard Model of Particle Physics there are 32 fundamental constants. In the experiments these constants can be measured, but theoretically they are not understood.

I will discuss these constants, which are mostly mass parameters. Astrophysical measurements indicate that the finestructure constant depends on time. Grand unification implies a time variation of the QCD scale. Thus the masses of the atomic nuclei and the magnetic moments of the nuclei will depend on time. I proposed an experiment, which is currently done by Prof. Haensch in Munich and his group. The first results indicate a time dependence of the QCD scale. I will discuss the theoretical implications.

About the Speaker

Professor Harald Fritzsch is a theoretical physicist, who has made important contributions to Quantum Chromodynamics, to Grand Unified Theories and to the physics of quark and lepton flavors. Professor Fritzsch has served as the Chair of the Theoretical Physics at the University of Munich and he was also the President of the Society of German Scientists and Physicians, the German equivalent of the American Association for the Advancement of Sciences in USA. He has won several awards including the prestigious Award of the Volkswagen Foundation in 1989, the Medal for Science Publishing by the German Physical Society in 1994 and the Dirac Medal (UNSW) in 2008.

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Time: 10.30am

Venue: SPMS-MAS Executive Classroom 1 (MAS-03-06)

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