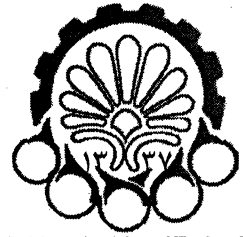


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OF TECHNOLOGY**

JANUARY

6 – 9, 2004

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**Proceedings of the First International Conference on Physics (ICP)
January 6-9, 2004 – Tehran, Iran**

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The First International Conference on Physics (ICP) 2004
Organized by the Faculty of Physics and Nuclear Sciences
Amirkabir University of Technology
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**What can we know from the solar gravitational moments?
Determination, astrophysical consequences.**

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We present the theory of slowly rotating stars in order to determine accurately the successive gravitational moments of the Sun. We emphasize the differential rotation as a major contribution. The computations permit to investigate the effect of this observational near-surface rotation gradient on the theoretical values of solar surface parameters. The first moments J_2 and J_4 are presented and compared with other values already available. We show why unexact values are found in the literature. We also deduce a value of the angular momentum of the Sun and we show why temporal variations may exist.

Then we explain why it is important to know these moments with a high accuracy, namely in general relativity. We show that the PPN alternative theory formalism is needed, and combining the up to date values of the light deflection parameter γ with J_2 , we determine a possible range of the beta parameter, thus different from unity, the value of general relativity.

Finally we give a glimpse at future satellite experiments which will help to stronger constrain the parameter space (γ , β , J_2).

(Invited lecture)