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Gravitational form factor and D-term for hydrogen-like atom

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Recently, gravitational form factors (EMT-form factor) for nucleons has drawn attention in relation to internal structure of nucleons. It has been proposed that the EMT form factor can be interpreted as pressure or shear force distribution and its value at zero momentum transfer (the D-term) are required to be negative as a result of stability. In this talk, we show that for the most famous bound-state in quantum field theory, the hydrogen-like atom bounded by QED forces, the EMT form factor and in particular, the D-term can be explicitly calculated to NLO in the frame work of NRQED. The value is positive.

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