

Quantum criticality is one of the corner stone assumptions of TGD. The value of Kahler coupling strength fixes quantum TGD and is analogous to critical temperature. TGD Universe would be quantum critical. What does this mean is however far from obvious and I have pondered the notion repeatedly both from the point of view of mathematical description and phenomenology. Dark matter as a hierarchy of phases of ordinary matter labelled by the value of effective Planck constant  $h_{\text{eff}}$  following as prediction of adelic physics suggests a general approach to quantum criticality. In the second part of the chapter about quantum criticality condensed matter applications are discussed.