## The 5th international conference on particle physics and astrophysics



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## Super dense star in non-commutative space-time

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We generalise the anisotropic core–envelope model of the super-dense star to kappa-deformed space-time (a non-commutative space-time) and study the modifications due to the existence of a minimal length. We formulate Einstein's field equation in the kappa-deformed space-time and solve it to obtain the anisotropic core–envelope model, describing the super-dense star, in kappa deformed space-time. The solutions will yield the kappa-deformed law of density variation, the expression for the radial as well as tangential pressures in the kappa-deformed space-time. We also derive the kappa-deformed strong energy conditions and obtain a bound on the deformation parameter.

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