

QUADRUPLD ION TRAPS WITH SPHERICAL AND GEOMETRIES OPTIMIZATION

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Quadrupole ion traps with spherical as well as cylindrical geometries are designed and analyzed. For this purpose, an optimization is carried out in order to suppress the contribution of the electric octupole moment in the potentials inside the traps. As a validation, three stability regions computed for these optimized geometries are compared with those obtained for a quadrupole Paul trap, and excellent agreements are found. The spherical and cylindrical traps have some advantages in comparison with the hyperbolic Paul trap.

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