

NUCLEAR GROUND STATE PROPERTIES IN STRONTIUM BY FAST
BEAM LASER SPECTROSCOPY

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SUMMARY

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Optical experiments have contributed to a detailed mapping of nuclear ground state properties over extended regions of the nuclear chart and provided data for the improvement of the descriptive and predictive power of nuclear models.

Up to now, one particularly interesting region has found little attention from the optical spectroscopy groups, namely the region near $Z = 40$. Here, the influence of the $N = 50$ shell closure, of the $Z, N = 40$ quasi-shell closure and of the strong deformations near $Z, N = 38$ and $Z = 40, N = 60$ on nuclear ground state properties can be studied over a remarkably short interval of N .

We therefore propose to measure the nuclear spins, moments and changes in mean square charge radii in strontium using the method of fast beam laser spectroscopy.

The experiment in the even- Z element strontium will provide complementary information to the rubidium data available for $76 \leq A \leq 98$. For the first time, it will allow a direct comparison of nuclear ground state properties in the $Z = 40$ region with mean field theories.