

**DENSE MATTER PHYSICS AND ASTROPHYSICS:
SOME RESULTS AND SOME PROBLEMS**

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Abstract. The mass density of materials occurs as a parameter in various domains of physics and astrophysics, from experiments in diamond-anvil cells to the gravitational collapse and the early universe. This paper has a double purpose: to review the basic results concerning the behaviour of materials under high pressure, and to point out some open problems. Special attention is given to results obtained in this country.