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**Hyperdeformation in the Cranked Relativistic Mean Field Theory**[1] ANATOLI AFANASJEV, C.W. JANG, J. BEGNAUD , Mississippi State University — Since the discovery of superdeformation in 152Dy, nuclear hyperdeformation (HD) has been in the focus of attention of the nuclear structure community [1,2]. Recent observation of the very extended shapes in 108Cd (see Ref. [3] for theoretical analysis) and the observation of ridge-structures in 3-dimensional rotational mapped spectra in the A$\sim$120 mass region, having features consistent with hyperdeformation [2], have renewed interest in the study of hyperdeformation. Systematic search for hyperdeformation at high spin in the Z=40-60 part of nuclear chart has been performed within the framework of the cranked relativistic mean field (CRMF) theory. Available experimental data (108Cd, ridge-structures in the A$\sim$120 mass region) have been compared with the calculations. The CRMF results are also compared with those obtained in the macroscopic+microscopic method [1]: the similarities and differences are outlined. The detailed features of the HD bands have been studied. The regions most favoured for experimental observation of the HD discrete bands will be outlined. [1] N.Schunck, et al, Phys. Rev. C75, 054304 (2007), [2] B. Herskind et al, Phys. Scripta T125, 108 (2006), [3] A.V. Afanasjev et al, Phys.Rev. C 72. 031301(R) (2005).

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