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Superdeformation in the $A \sim 40$ mass region[1]

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There is a renewed interest to the investigation of the superdeformation in light $A = 32 - 46$ nuclei [1,2]. In my talk, I will present the overview of the current theoretical understanding of the superdeformed structures in this mass region. The major focus will be on the results obtained within the cranked Nilsson+Strutinsky method and more microscopic cranked relativistic Hartree+Bogoliubov and cranked relativistic mean field approaches. The role of underlying shell structure, intruder orbitals and some other aspects of the superdeformation in this mass region will be discussed in detail. The comparison with other regions of superdeformation will be presented. A possible role of hyperdeformation in this mass region will also be discussed.

[1] E. Ideguchi, private communication (2014).
[2] E. Ideguchi et al, Phys. Lett. B 686, 18 (2010).