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Describing Nuclei on the Alhassid-Whelen Arc of Regularity in a SU(3) Basis¹ P. MANCHEV, M.S. FETEA, Department of Physics, University of Richmond, R.F. CASTEN, S. ECKEL, WNSL, Yale University — Until fairly recently, it was thought that most nuclei lie on or near the perimeter of the Casten triangle. It is now known this is not the case; in fact, most nuclei inhabit the interior of the Casten triangle. More than a decade ago Alhassid and Whelen discovered a striking benchmark. They identified an interior path connecting the U(5) and SU(3) vertices of the Casten triangle which unlike most of the rest of the interior does not exhibit chaos but rather preserves regularity. Jolie et al. [1] found 12 nuclei whose parameters lie along this regularity. They also identified an almost one-toone correspondence between the near degeneracy of the γ band head and the K=0⁺₂ band head for those nuclei. Most of the calculations involving the IBA are done in a U(5) basis. Wave functions of the nuclei on the arc of regularity are complicated when expressed in a U(5) basis but may be easier to work with in a SU(3) basis. Our goal is to determine features of nuclei on or close to the Arc based on the SU(3) description of their wave functions. Preliminary results will be presented. References: [1] J. Jolie et al., Phys. Rev. Lett. 93, 132501 (2004).

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