

Abstract Submitted  
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**Describing Nuclei on the Alhassid-Whelan Arc of Regularity in a  $SU(3)$  Basis**<sup>1</sup> P. MANCHEV, M.S. FETEA, 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 Whelan 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-to-one correspondence between the near degeneracy of the gamma 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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