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SU(3)-Basis Description of the Alhassid-Whelan Arc of Regularity[1] M.S. FETEA, University of Richmond, R.F. CASTEN, S. ECKEL, WNSL, Yale University, P.B. MANCHEV, University of Richmond — More than a decade ago Alhassid and Whelan identified an interior path connecting the U(5) and SU(3) vertices of the Casten symmetry triangle which unlike most of the rest of the interior does not exhibit chaos but rather preserves regularity. Recently, 12 nuclei whose parameters lie along this regularity were found. They all exhibit an almost one-to-one correspondence between the gamma band head and the K=02+ band head. If wave functions of the nuclei on the arc of regularity are complicated when expressed in a U(5) basis, the basis in which most of the IBA calculations are done, they may be easier to work with in a SU(3) basis. Based on the SU(3) description of the wave functions, we found a couple of different degeneracies taking place around the Arc. Although the degeneracy condition disappears rapidly as one goes away from the Arc, the wave functions change much more slowly. The existance of these degeneracies are leading us to the conclusion that there may be some underlying quantum number(s) that may (approximately) be valid in the regular region.

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