Abstract Submitted<br>for the DNP06 Meeting of The American Physical Society

## Describing Nuclei on the Alhassid-Whelen Arc of Regularity in

 a SU(3) Basis ${ }^{1}$ 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 $\mathrm{SU}(3)$ 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 $\gamma$ band head and the $\mathrm{K}=0_{2}^{+}$ 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 $\mathrm{U}(5)$ basis but may be easier to work with in a $\mathrm{SU}(3)$ basis. Our goal is to determine features of nuclei on or close to the Arc based on the $\mathrm{SU}(3)$ description of their wave functions. Preliminary results will be presented. References: [1] J. Jolie et al., Phys. Rev. Lett. 93, 132501 (2004).${ }^{1}$ This work was supported by U.S. DOE grants No. DE-FG02-91ER-40609 and No. DE-FG02-88ER-40417, NSF grants PHY 0204811 and 0555665, and Jeffress Fund grant J-809

Peter Manchev
Department of Physics, University of Richmond

