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E0 Transition strengths from X(5) to the Rigid Rotor
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Relative and absolute $E0$ transition strengths $[\rho^2(E0)]$ on the transitional path between the X(5) solution and the Rigid Rotor Limit have been evaluated within the framework of the Confined β-Soft (CBS) rotor model. Relative $E0$ transition strengths between the β-vibrational band and the ground state band decrease with increasing angular momentum for a given potential stiffness. Absolute $E0$ transition strengths drop with increasing potential stiffness towards zero in the Rigid Rotor Limit. The Z-independent quantity $X \propto \rho^2(E0; 0_2^+ \to 0_1^+)/B(E2; 0_2^+ \to 2_1^+)$ has been traced between X(5) and the Rigid Rotor. It reaches the value $4\beta_M^2$ at the Rigid Rotor Limit, as previously derived by Rasmussen [1]. A new Inter-Band $E0 - E2$ correlation observable $Y \propto \rho^2(E0; 0_2^+ \to 0_1^+)/B(E2; 0_2^+ \to 2_1^+)^2$ has been proposed [2], which is independent on the absolute nuclear deformation and solely depends on the nuclear stiffness. Available data for X and Y are in satisfactory agreement with the CBS model.

[1] J.O. Rasmussen, Nucl. Phys. **19** (1960) 85-93.

[2] J. Bonnet, A. Krugmann, J. Beller, N. Pietralla, R.V. Jolos, submitted to Phys. Rev. C.

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