EWSR. The existence of this "pigmy resonance" which can be viewed as a simple consequence of the existence of a low-lying particle hole state associated with the transition $s_{1/2} \to p_{1/2}$, arguably, testifies to the coexistence of two states with rather different radii in the ground state*). One, closely connected with the compact (≈ 2.7 fm) ^{9}Li core, the second with the diffuse halo (≈ 4.6 fm). Because the overlap between them is small ($\approx (2.7/4.6)^3 \approx 0.2$), one can posit that a bona fide dipole pigmy resonance is a GDR based on an exotic, unusually extended state as compared to systematics ($A \approx (4.6/1.2)^3 \approx 60$), i.e. to a system with an effective A mass number about 5 time than predicted by systematics**).

Let us try to shed some light on these issues. Making use of the relation $\langle r^2 \rangle^{1/2} \approx (3/5)^{1/2} R$ between mean square radius and radius, one may write

$$\langle r^2 \rangle_{^{11}Li} \approx \frac{3}{5} R^2_{eff}(^{11}Li),$$

Box 4

Furthermore, the pigmy dipole resonance may be built not only on the ~~ground~~ extended component of the ground state as in ^{11}Li but also on exite states like e.g. ^{11}Be (see Fig. 2.)

*) This is reminiscent of the deformation coexistence found in e.g. ^{16}O, ^{40}Ca ground states and, recently in ----

*) Within this context the dipole strength found at ≈ 10 MeV in neutron rich nuclei can hardly be consider pigmy resonance, but the long tail of the GDR.