Monopole and Quadrupole Coupling in the Isoscalar Giant Resonances in ^{94}Zr and ^{96}Zr

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The isoscalar giant resonances for ^{94}Zr and ^{96}Zr are studied by the quasiparticle finite amplitude method based on the covariant density functional theory using the Density-Dependent Point-Coupling DD-PC1 and DD-PCX models. Validation of the numerical implementation is examined for ^{90}Zr and ^{92}Zr, then a good agreement with the available experimental isoscalar monopole strengths is obtained. The well-known monopole-quadrupole coupling that splits the isoscalar giant monopole resonance is identified in ^{94}Zr and ^{96}Zr isotopes. A soft monopole mode is found near 14.7MeV for ^{94}Zr, and at 15.2MeV for ^{96}Zr.