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Structure of the Xe 6s and 6s' Rydberg states in supercritical Ar LUXI LI, XIANBO SHI, C.M. EVANS, Queens College and the Graduate Center – CUNY, G.L. FINDLEY, University of Louisiana at Monroe — In this paper, we present new absorption measurements and complete lineshape simulations (including all blue satellite bands) of the Xe 6s and 6s' Rydberg states doped into Ar from low density to the density of the triple point liquid, at both noncritical temperatures and on an isotherm near $(+0.5^{\circ}C)$ the critical temperature of Ar. Using these simulations, as well as the known Ar induced shift of the ionization energy of a dopant¹, the Ar induced shift in the Xe 6s and 6s' term energies is determined and is shown to exhibit a large critical point effect. The nature of this critical point effect is discussed.

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¹C. M. Evans and G. L. Findley, Phys. Rev. A 72, 022717 (2005).

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