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Coherent states of the periodically driven Rydberg atom LUZ VIANEY VELA-AREVALO, Universidad Autonoma de Aguascalientes — A methodology to calculate generalized coherent states for a periodically driven system is presented. We study wave packets constructed as a linear combination of suitable Floquet states of the three-dimensional Rydberg atom in a microwave field. The driven coherent states show classical space localization, spreading and revivals, and remain localized along the classical trajectory. The microwave strength and frequency have a great effect in the localization of Floquet states, since quasienergy avoided crossings produce delocalization of the Floquet states, showing that tuning of the parameters is very important. Using wavelet based time-frequency analysis, the classical phase space structure is determined, which allows us to show that the driven coherent state is located in a large regular region in which the z coordinate is in resonance with the external field. The expectation values of the wave packet show that the driven coherent state evolves along the classical trajectory.

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