

Programmable quantum spin models with Rydberg arrays

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Rydberg atoms in optical tweezers offer a novel and versatile platform to realize largely tunable quantum spin models. One and two-dimensional arrays of freely definable geometry can be realized routinely. This makes this platform an ideal choice to study many-body dynamics in synthesized quantum systems. Here we discuss new developments in interaction control and design aiming to widen the scope of quantum simulation applications that can be targeted with the Rydberg tweezer platform.