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Abstract for an Invited Paper
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Quantum simulation with alkali and alkaline-earth Rydberg-arrays

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Recently, cold alkali atoms in optical tweezer arrays have emerged as a versatile platform for quantum simulation. I will review these developments and give an update about ongoing experiments with alkaline-earth atoms: 1) I will introduce atom-by-atom assembly as a fast and simple method to generate defect-free atomic arrays. 2) I will review how such arrays can be used as a quantum simulator for specific types of transverse- longitudinal-field Ising-models with $1/\mathrm{R}^6 interaction.3) I will outline how we are currently extending this work to Alkaline - Earth atoms using Strontium - 88; particularly, I will illustrate how this direction could overcome current coherence limits and enables calability to larger tweezer arrays.$