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**Towards robust two-qubit gates on a trapped-ion quantum computer** YUNSEONG NAM, IonQ, Inc, REINHOLD BLMEL, Wesleyan University, NIKODEM GRZESIAK, IonQ, Inc — The ability to implement robust entangling gates on a quantum computer is essential to scalable quantum computing. In this talk, I will present a constructive method to shape pulses that implement two-qubit XX gates on a trapped-ion quantum computer. By modulating amplitude and frequency of the pulses that illuminate the ions simultaneously, this method can stabilize the XX gates against external parameter fluctuations. The method is linear, requiring only modest amount of classical computational resources.

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