## 24th Australian Institute of Physics Congress



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## Expected Trapped-Ion Fast Gate Performance with Ultrafast Pulsed Lasers

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Fast two-qubit phase gates with trapped-ions are feasible with an expected gate fidelity of 77.8% using a sequence of our ultrafast picosecond laser  $\pi$ -pulses. Such sub-microsecond gate operations support the development of scalable quantum computers.

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