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Ultra fast response of arrayed waveguide gratings: a phenomenological quantum approach DANIEL DOMINGUEZ, Texas Tech University, JOHN SANDY, Texas Tech Univeristy, LUIS GRAVE DE PERALTA, Texas Tech University — Using a phenomenological quantum description of the ultra fast response of arrayed waveguide gratings (AWG) illuminated with relatively intense short pulses of light, we show that integrated-optics pulse shapers based on AWGs can be used to produce interference between femtosecond pulses of light in conditions where the which-path information is available. We discuss the implications of this result for the Heisenberg uncertainty principle.

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