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Lars Onsager Prize Talk: 1+1d conformal field theories as natural languages for asymptotically large-scale quantum computing

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An abstract argument is offered that the ideal physical systems for asymptotically large-scale quantum computers are near-critical quantum circuits, critical in the bulk, whose bulk universality classes are described by 1+1d conformal field theories. One in particular – the Monster conformal field theory – is especially ideal, because all of its bulk couplings are irrelevant.