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The ATIQ project: collaborative development of trapped-ion quantum computers

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The ATIQ project in Germany brings together multiple universities and industries to further develop technologies and methods needed for scalable trapped-ion quantum computers. The Leibniz Universität Hannover is one of three centers for trapped ions within the collaboration, alongside the Universität Siegen and the Johannes Gutenberg Universität Mainz. Each trapped-ion quantum computing center has a different focus in their project, and in the collaboration for Hannover's quantum computer, the focus is to develop integrated waveguides, which are needed in order to scale up the size of trap chips and consequently the number of qubits in a trapped-ion quantum computer. In parallel, the collaborations for Siegen and Mainz focus on the development of an integrated cryogenic digital-to-analog converter and the integration with a high performance computer respectively. This talk will focus on the collaboration between universities, the Physikalisch-Technische Bundesanstalt, and several companies working towards the Hannover-based quantum computer.

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