

# Rúben André Barreiro

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## Quantum Computing for Natural Sciences (with IBM Quantum)

**Teaching Team:** Max Rossmannek, Julian Schuhmacher, Alexander Miessen, and Laurin Fischer

<b>Duration:</b>	06.09.2023 - 26.09.2023	<b>Exam:</b>	2 hours, 24 questions
<b>Language:</b>	English		(multiple choice)
<b>Teaching form:</b>	Online Course		


### Course Topics:


- Simulating molecular dynamics on quantum computers
- Challenges and prospects of quantum simulation
- Common error sources and how to mitigate them
- Mapping the quantum description of molecules to the qubits of a quantum computer
- Computing ground state and excited state energies of molecules with quantum algorithms

### Result:

21.6 out of 30.0 possible points (72.0%)

  
Prof. Dr. Christoph Meinel  
openHPI Director

  
Julian Schuhmacher  
Course Guidance

  
Alexander Miessen  
Course Guidance

  
Laurin Fischer  
Course Guidance



Potsdam, September 26, 2023

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