



## Quantum Universe Lectures

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# “Recent developments for scattering amplitudes”

17, 24 June and 1 July 2022 at 14.30h via Zoom

<https://uni-hamburg.zoom.us/j/92293543262>

(Meeting ID: 922 9354 3262, Passcode: 97540703)

### **Abstract:**

Scattering amplitudes describe the interactions of elementary particles in quantum field theory. They are relevant for collider physics phenomenology, as well as for foundational studies of quantum field theory. Although the basic principles for computing scattering amplitudes have been known for decades, our understanding of these processes, and our ability for computing them, has undergone several conceptual revolutions. While the ultimate phenomenological aim are numerical results for observables, the usefulness of 'theoretical data' – analytic expressions for amplitudes – has been a crucial seed for progress in this field. It has enabled researchers to understand properties that are hidden in the conventional Lagrangian formalism. Examples are hidden symmetries, intriguing connections to modern mathematics, and novel geometric approaches.

The first of this series of three lectures aims at giving a general introduction to this field and its philosophy, at a non-technical level. In lectures two and three, which are self-contained, several of the newly found structures will be presented.

### **Registration on Geventis:**

<https://www.geventis.uni-hamburg.de/course?course=712694130382900730>

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