

# GASTVORTRAG

## im Kolloquium Wissenschaftsgeschichte

### Envisioned Matter: Microscopic Imagination and Microtechnique after the Abbe Diffraction Limit, 1874-1939

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From the 1870s biologists began seeking the “structure of protoplasm,” hoping to find a universal, underlying structure to the protoplasm, the cellular substance known as the “material basis of life.” But any hope of magnifying their way into sub-cellular structure was thwarted by hard physical reality, when, in 1873–74 the physicist Ernst Abbe theorized that the light microscope had an absolute physical limit: under ideal conditions, a light microscope can only resolve objects down to about 250 nm. While some biologists sought to stretch the limits and credibility of microscopy through imaginative guesswork and novel microtechnique, others tried to apply a stricter physicalist formalism to understand protoplasm and cells as colloids with clear, measurable properties. In this talk I will follow a line of inquiry made by Hans-Jörg Rheinberger and recently renewed by Anna Simon-Stickley: that staining, fixation, and thin-sectioning formed an interface between the biological specimen and chemical and physical theory. I will explore how two paths—one visual, one quantitative—diverged and reconnected multiple times in the early twentieth century, leading to the creation of a biological microworld that foreshadowed the postwar molecular biological revolution.

**Zum Gastvortrag ergeht herzliche Einladung  
Eine Anmeldung ist nicht notwendig**