

***Dear Faculty, Postdocs, Students, and Friends:***

***You are cordially invited to attend a seminar presented by***



**Regine Kahmann**

***Max Planck Institute for Terrestrial Microbiology***

**Title:**

**“How biotrophic fungi infect plants: unexpected insights from essential effectors”**

**DATE: Friday, February 12, 2021**

**TIME: 12:00 pm PST**

**ZOOM MEETING ID: 929 1247 4758**

**PASSCODE: 644865**

**Host: Hailing Jin**

Abstract: *Ustilago maydis* is a biotrophic fungal pathogen causing smut disease in its host plant maize. During colonization, *U. maydis* secretes effector proteins to suppress plant defense responses and manipulate the physiology of the host for its own benefit. A majority of the effector proteins lack functional annotations and their role in virulence remains to be determined.

We systematically deleted effectors, whose expression is linked to the stage when biotrophy is established and thereby identified three mutants which failed to cause disease. Mutants lacking these essential effectors were still able to form appressoria and penetrate the plant but arrested in the epidermal cell layer and elicited plant defense responses and plant cell death. Co-IP/MS experiments of plant tissue infected by *U. maydis* expressing tagged essential effectors revealed that the three essential effectors form a complex with two additional effectors and two fungal transmembrane proteins. We provide evidence that not only the presence of all seven individual complex members, but the formation of the complex itself is necessary for successful colonization. We speculate that the complex is part of the structural machinery for contact between fungus and host and effector delivery and will discuss what supports this proposition.