

THIRD PH.D. DEGREE FOR 2018 COMPLETED IN FABI

FABI's 20th anniversary year is off to a flying start with Felix Fru becoming the third FABian to defend successfully his PhD thesis on 20 February. Felix presented his Prestige Seminar (photo below) entitled "Population genetics and ecology of *Fusarium circinatum* on *Pinus* species in eastern South Africa" to colleagues and friends the previous day. It was a double celebration for the Institute as Marike Palmer also passed her PhD defence the same day.



Felix's supervisors were Proff Jolanda Roux, Mike Wingfield and Emma Steenkamp while the external examiners were Prof Julio J. Diez Casero from Spain's Universidad de Valladolid and Dr Peter Scott from Scion Research in New Zealand. The internal examiners were Proff Teresa Coutinho and

Wolf-Dieter Schubert.

Fusarium circinatum is an ascomycete fungus that is a pathogen of *Pinus* species and Douglas fir. It causes pitch canker disease on mature pine trees and disease of pine seedlings and cuttings. Dispersal is by seed, seedlings, plant material, insects, irrigation water and wind. The first report of this fungus in South Africa was from a forestry nursery in the Mpumalanga Province. It was also the first report worldwide of the infection of *Pinus patula* by this pathogen posing a serious threat to South Africa's timber industry.

Felix studied the population diversity and mating strategy of *F. circinatum* and the genotypic relationship between this fungus in commercial *Pinus* plantations and nursery populations in the summer rainfall region of South Africa. From these data, he established a model to predict the potential risk of occurrence of pitch canker in South Africa based on current and future climate data. His study showed that pitch canker disease is a growing threat to the commercial plantations of *Pinus* species. The findings of the study will guide the local forestry industry in designing management and control strategies for the pathogen.