

Dr. Sebastian Bake is Chief of Environmental Technology at Rolls-Royce and a Senior Specialist in Combustor Aero-Thermal and Emissions.

Sebastian joined Rolls-Royce Deutschland (RRD) in 2001 after graduating with a Diploma in Applied Mechanics, postgraduate studies in Engineering at Cambridge University, and a PhD thesis about experimental work in the field of Laminar-Turbulent Transition at the Technical University in Berlin.

He started at RRD with the development of lean-burn combustion which included a wide variety of rig-testing from single combustor sector at different facilities and German Aerospace Centre (DLR) to the engine demonstrators in the Altitude-Relight Test Facility at University Stuttgart. His focus is set on combustor operability and emissions and during a secondment in Derby he took part in the Large Engine Emission Strategy set-up. For several engines at RRD he led the engine emission certification from combustion aero test to the communication with national aviation authorities. His list of external and RR internal reports comprises more than fifty entries.

Sebastian took part in the RR global approach of developing Preliminary Design Combustor Tools. He has led work on combustor aero definition and subsystem integration for several civil aero engines. The NO_x and nvPM emission reduction strategy to be compliant with stringent legislation and customer requirements is always an inherent and dominant part of it.

Sebastian is supporting the development of the RR Emissions and Climate Analysis System – concerned with CO₂ and non-CO₂ emissions climate impacts, engine exhaust particulates and contrail formation, climate metrics and links to engine and aircraft design.

Sebastian has further developed his external network in the global ICAO CAEP community where he is representing Rolls-Royce in the technical emissions working group (WG3) and is actively involved to form future emissions legislation for aviation engines presenting papers from the industrial OEM group ICCAIA. Concerning engine emissions, he also spoke several times for the industry manufacturers on European stakeholder meetings and took part in ECAC Environmental Forums.