

Dosent / Lecturer: Prof TW von Backström	Email:	twvb@sun.ac.za		
	Tel:	+27 21 808 4267		
	Office:	M525		
Fakulteit / Faculty: Engineering	Departement / Department: Mechanical and Mechatronic Engineering			
Afdeling / Division: Design & Mechatronics / Mechanics / Thermo fluids / <u>Renewable Energy</u>				
Navorsingsveld / Research field: Concentrating solar power; conversion of gas turbine to run on biogas; combined cycle power plants: rock bed thermal energy storage; solar receiver optimisation.				
Algemene beskrywing van navorsingsveld: General description of research field: Improvement of the underlying technologies of the Stellenbosch University Solar Thermal Power Thermodynamic (SUNSPOT) cycle and the Spiky Central Receiver Air Pre-heater (SCRAP) as mentioned above.				
Lys van onderwerpe/List of topics:	MEng (Structured)	MEng (Research)	PhD	Funding
1. Modelling and CFD validation of external wind flow (air flow through spikes) and natural convection on spikes		X		
2. Advancement of spike tip jet impingement cooling through improved geometry		X	X	1MEng 1PhD
3. Advancement of exploiting the benefits of helically swirled fins where a CFD model starts combining the environment around a spike with inside to understand and quantify the benefits.)		X	X	1MEng 1PhD
4. Comparison of rock-bed TES charged from CSP technology to using PV generated heat (understanding the margin thermal is still ahead of PV).	X			
5. Redesign and costing of full scale rock bed thermal energy system		X		1MEng
Spesifieke voorvereistes / Specific requirements:				