<Associate Professor Ursula SCHARLER>
< Associate Professor > at <University of KwaZulu-Natal, Durban, South Africa>

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Educational Curriculum	1986 to 1991: Studies up to M.Sc. level at the Department of Zoology, University of Salzburg, Austria. 1992: B. Sc. (Honours) at the Department of Zoology, University of Port Elizabeth, South Africa. 2000: Ph.D. at the Department of Zoology, University of Port Elizabeth, South Africa. Dissertation topic: "Response of nutrient status and biotic communities to variable freshwater input regimes in Eastern Cape estuaries, South Africa, including a network analysis approach to ecosystem function".
Professional Experience	2017 to present: Associate Professor at the University of KwaZulu-Natal, School of Life Sciences. 2014-2016: Senior Lecturer at the University of KwaZulu-Natal, School of Life Sciences. 2006 until 2013: Lecturer at the University of KwaZulu-Natal, School of Life Sciences. 2006: Contract work for the University of Sheffield, UK, on the impact of pesticides in aquatic ecosystems. • 2002 – 2005: Research Assistant, Center for Environmental Science, Chesapeake Biological Laboratory, University of Maryland, USA. • Post-doctoral Research Fellow, Smithsonian Environmental Research Center, MD, USA. • Visiting Scientist at the Department of Aquatic Ecology and Water Quality Management, Wageningen University, The Netherlands. 1996 – 1998: Contract work for institutions such as the Department of Water Affairs and Forestry (DWAF), Water Research Commission (WRC), Ninham Shand Consulting Engineers, Consortium for Estuarine Research and Management (CERM), Council for Scientific and Industrial Research (CSIR), Institute for Coastal Resource Management (ICRM), Coastal Research Unit Zululand (CRUZ) in South Africa.
Current research interest	- Systems Analysis - Ecosystem modelling and analysis (Indicators of ecosystem state; Indirect effects in ecosystems; Food web analysis; competition, mutualism; resilience, trophic transfers;

	Network Analysis; motifs) of food webs and quantified bio-energetic ecosystem models and interaction models.
	- Network analysis of ecosystems, embodied water systems and urban metabolism systems.
	- Hierarchical interconnection of species-, community- and system level.
	- Energy and nutrient budgets, stoichiometry.
	- Isotopes and trophic ecology.
	- Ecosystem connectivity.
	- Aquatic ecology.
Research methods	- Ecological network analysis
	- Linear inverse modelling (Linking empirical data to network construction)
Publications	Ludovisi A and UM Scharler. 2017. Understanding and interpreting indicators derived from ecological networks. Ecological Indicators. 72: 726-737.
	Xia L, Fath BD, UM Scharler, and Y Zhang. 2016. Spatial variation in the ecological relationships among the components of Beijing's carbon metabolic system. Science of the Total Environment. 544: 103–113.
	Fath, BD, Scharler UM, Ulanowicz RE, and B Hannon. 2007. Ecological Network Analysis: Network Construction. Ecological Modelling 208: 49-55.

Ecological Network Analysis applications in ecological and socio-economic systems
Abstract of the talk (10 lines):

I will present an overview of the ecological network analysis (ENA) methodologies that are of importance in ecological and socio-economic systems, and highlight those that are used across both sectors. Some of these methodologies lend themselves for easer interpretation (e.g. pathway analyses) than others (e.g. information theory), and as they essentially describe complex systems, the translation and comparison to known status indicators of for instance ecosystems is often challenging. Furthermore, I will talk on the historical development of verifying models with empirical data, and the challenges that arise for modellers, empirical ecologists, and managers of systems.