



cordially invites you to an

Interdisciplinary Seminar

with

Dr. Sergei Tarasov

on

“Systematics of dung beetles (Coleoptera: Scarabaeidae: Scarabaeinae) and ontology-informed models for phenotypic evolution”

Tuesday, August 23, 2016

3:30-5 p.m.

Reception & refreshments at 3 p.m.

Hallam Auditorium, Room 206
1122 Volunteer Boulevard



Sergei Tarasov (Mathematics and Natural Sciences, Univ. of Oslo, 2016) is NIMBioS postdoctoral fellow. Tarasov develops novel ontology-based models for phenotypic evolution and tools for their statistical inference, including a software package in R. He is exploring the proposed model using two focal lineages of insects—dung beetles and wasps.

Abstract: The first and main part of my talk will be focused on the systematics of dung beetles, a globally distributed group of insects that comprises ~ 6200 species feeding mainly on mammalian excrements. In my research, I revise the phylogenetics and classification of dung beetles through the analyses of global morphological and molecular data. To improve inference, I employ novel approaches that use Bayesian posterior prediction for selecting partitions in molecular analysis and partitioning of morphological matrices using anatomy ontologies. Both the molecular and morphological datasets yield generally consistent results, which suggest new relationships and classification for dung beetles. The second part of my talk will be devoted to my ongoing project on modeling phenotypic evolution. The dependencies among body parts in organisms evolve during evolution, yet the current comparative phylogenetics ignore them. These dependencies can be represented as a tree graph, which is allowed to evolve over phylogenetic tree as a single complex unit. Application of such framework can address questions on the adaptive dynamics and origin of evolutionary novelties.