**Omar Rota Stabelli**

Unit of Agricultural Entomology
Department of Sustainable Agroecosystems
Fondazione Edmund Mach, ITALY

omar.rota@fmach.it

Teaching Evolution Using Similarities

I'm a molecular evolutionists and I do reconstruct phylogenies of various living forms ranging from animals to viruses. My institute is mostly interested in organisms involved in food production and human health (plant parasites, mosquitoes, fruit plant). I often outreach both the general public and the schools over these issues in particular about the phylogeny and the evolution of species.

I'm currently developing an outreach exercise about teaching  some complex evolutionary concept to a general public using similarities with common life tings. In particular I' m developing the history of human beverages (thorugh a large phylogney of drinks) and I'm linking key social events with typical evolutionary concepts. For example the change of one ingredient in a cocktail can be seen as a "point mutation"; the movement of an ingredient from a recipe to the other can be seen as an "Horizontal Gene Transfer"; new trends toward sweet drinks has generated a "Mullerian Mimicry", etc, etc. I have done this successfully in the form of an informal lecture at meetings and museums.  STMS participant may develop on this idea which is relevant for WG3 and  WG5 by for example developing method to assess it or by enlarging it in a long article. She will also increase her knowledge of phylogentics and the best practice that the lab has developed to explain complex phylogenetic concepts to the public and to schools.

Currently, no member of the lab is actively founded to do outreach events, therefore we outreach only sometimes and on a voluntarily basis. One STMS visitor shall allow us to concentrate more on outreach. Furthermore, the point of view of a different European nation shall increase our understanding of the international heterogeneity of the understanding of scientific knowledge.

**Tom Børsen**

Associate Professor, Research Group for Techno-Anthropology and Participation (TAPAR)
Director, Study Board of Techno-Anthropology, Sustainable Design and Integrated Food Studies
Department of Development and Planning, Aalborg University Copenhagen, DENMARK

boersen@plan.aau.dk

I do research in Responsible Research and Innovation – including Science Education, Public Understanding of / Engagement in Science, Good Scientific Practice. STSM applicant will get insight in these topics, and interact with peers working in a interdisciplinary environment. Aalborg University is a PBL university, and insight in this pedagogy can also be obtained. I encourage visitors to give a symposium where we can exchange research ideas. Both my peers and our students of Techno-Anthropology will be invited. This will be interesting for all of attending the symposium.

**Tamara Milosevic**

President of the Rhizome Association, CROATIA
tamara@rhizomeacademy.org

We are mainly concerned with adult (non-academic) science training, and as an independent consultant, where I also conduct educational research studies. We focus on following 3 questions:

a) How to learning environments impact the development of skills?
b) Exploring how action research and self- and peer-evaluations can help in determining the impact of a specific learning goal and improve teaching practices
c) An "outsider" view point on the programs we are developing, a pair of eyes/hands to conduct the educational research projects

**James D. Williams**

University of Sussex, School of Education and Social Work, Brighton, UNITED KINGDOM
james.williams@sussex.ac.uk

My main field of research concerns the nature and language of science, in particular pre-service science teachers understanding of the nature of science and scientific reasoning along with their understanding of key terminology in science (theory, law, principle, hypothesis, law). Allied to this is their understanding of 'the scientific method' (or more properly, the methods of science). I also have an interest in how to deliver evolution in school science as a matter of acceptance of evidence rather than being characterised as a 'belief' – this is, in my view, an effective way of addressing the tensions between those with a religious belief, which may stop them learning about or gaining an understanding of evolution, feeling that they must 'believe' in evolution when the basis for science is actually the acceptance of evidence and it is not inherently a belief system (Williams, 2014, Williams, 2016).

Main research questions are:

1. How do science graduates and pre-service science teachers define the key terminology used within science (e.g. theory, law, principle etc.)?
2. How do science graduates and pre-service science teachers understand the concept of 'the scientific method'?
3. Are there key similarities and differences between how different scientific disciplines understand the nature of science and its key working terminology?

I believe that with a greater understanding of the nature of science and how its terminology is used students, teachers and others can better understand how evolution is studied and evidenced. I have previously published work on the language of science (Williams, 2013) as well as a book on the nature of science (Williams, 2011) intended to help science teachers. Having recently completed a doctorate which examined how the NoS was incorporated and then evolved through various versions of the National Curriculum for Science in the UK I can see how teaching about the NoS aids scientific literacy and prepares students to understand scientific reasoning – it is my contention that a lack of understanding in these areas causes issues in understanding evolution and, more generally inhibits general scientific literacy. I would like to discuss and disseminate my ideas on the crucial role of the NoS in science education (particularly its incorporation into the curriculum for science at both primary and high school teaching).

In hosting an STSM I would hope to improve my network of like-minded science education tutors and set up research collaborations to find out and compare cohorts of undergraduates, pre service science teachers and existing experienced science teachers to survey their knowledge and understanding of the NoS and 'the scientific method'.

**Mirko Đorđević**

University of Belgrade, Institute for biological research Sinisa Stankovic, SERBIA

mirdjordje@gmail.com

My team at the Department of Evolutionary Biology, Institute for biological research "Sinisa Stankovic", are mainly focused on evolutionary ecology and evolutionary genetics. More specifically, by using experimental evolution approach in the seed beetle Acanthoscelides obtectus my team is testing diverse evolutionary hypotheses in life-history theory, coevolutionary dynamics of nuclear and mitochondrial genomes interactions, ecological and evolutionary consequences of the host-shift process and speciation in herbivorous insects. Additionally, we are involved in popularization and dissemination of evolutionary biology theory and facts in Serbia.

Participants can expect to be involved in our research, as well as to share our experience in various science popularization activities.

Hosting an STSM will develop important friendships and boost my network of people dedicated to the same goals that I pursuit. Also, it will help me to develop skills such as communication, teamwork and time management.

**Bento Cavadas**

Polytechnic Institute of Santarém, Mathematics and Natural Science

Bento.Cavadas@ese.ipsantarem.pt

STSM in Higher School of Santarém, PORTUGAL

(Available after 30th April 2019)

Main research questions are:

What are the conceptions of preservice teachers about evolution?

How can these conceptions be modified through innovative activities in teaching evolution?

The participant will be immersed in a teacher training institution which has a project of innovation in science and mathematics education: CreativeLab_Sci&Math. This project of the Escola Superior de Educação de Santarém aims the innovation in mathematics and science education through the collaborative design, implementation and assessment of interdisciplinary activities in science and mathematics, within a co-teaching context. The exchange of active learning methodologies and how they are used in innovative learning environments could contribute to the development of professional skills for the participant.

The exchange of experiences and knowledge throughout the STSM with other teachers and researchers will contribute for my professional development, regarding science education. In addition, this STSM may enable partnerships and research projects between the participants.

**Xana Sá Pinto**

Centro de Investigação em Didática e Tecnologia na Formação de Formadores", University of Aveiro, PORTUGAL

xanasapinto@gmail.com

My name is Xana Sá Pinto and I recently changed from research in evolutionary biology to research in science education. My research project aims to answer the following questions:

What and how can elementary school students learn about evolution and how this impacts their scientific literacy?

During this STSM the participant will learn and help to developing resources and instruments to foster and evaluate evolution understanding in elementary schools. We aim to develop collaborative research projects which results can be published (with shared authorships) and used to inform report writing, curriculum design and educational policies on evolution education. Participants will also be able to spend some time and learn more about Porto and Aveiro cities.

**Liubov Tupikina**

Ecole Polytechnique, FRANCE
liubov.tupikina@cri-paris.org

My main research is on theory of spreading the information: how can the information spreading can help the educational system and not the opposite?

I am also working on the analysis of educational platforms. Here the main question is how to improve education in urban poor areas using digital frameworks?

**Evangelia Mavrikaki**

University of Athens, GREECE

emavrikaki@primedu.uoa.gr

Analysis of European Curricula

STSM will focus on gathering and organizing the data and results that members of the WG2 will have produced in order to proceed with deliverable 1.

Deliverable 1: Academic paper and report on the comparative results of the analysis of the schools'curricula with suggestions to explore evolution from elementary school. Results will also be presented in the media in each country's language.

Estimated duration of stay 10-15 days

**Sille Holm**

Natural History Museum of Tartu University, ESTONIA

sille.holm@ot.ee

We could host STSM to exchange experiences on the museum exhibitons. We have permanent and temporary exhibitions. There is also an Earth Life Story permanent exhibition.

Massimo Bernardi

MUSE Science Museum of Trento, Trentino, ITALY

massimo.bernardi@muse.it

Evaluating and Implementing Evolution Related Topics In MUSE Museum Galleries

We seek contribution from a colleague trained in both evolutionariay biology and science dissemination/outreach  that might contribute with feasible exhibit proposals to our museum visiting experience.