



V congress of the Italian Society for Evolutionary Biology. Trento, 28–31 August 2013

WEDNESDAY 28 AUGUST

- 13:00 registration opens
14:00 welcome from the organizers, SIBE presidency, and authorities

EVOLUTIONARY APPLICATIONS FOR BIOSYSTEMS AND AGRICULTURE

- 14:20 Chairs introduction (Gianfranco Anfora and Claudio Varotto)

Part 1: Insects and ecosystems

- 14:30 *Elisa Frasnelli*: Linking the evolution of brain asymmetries and social behaviour in honeybees
14:50 *Alessandro Cini*: Insects social networks: from pure to applied ethology
15:10 *Giuliano Gasperi*: Uncovering the tracks of a recent and rapid invasion: the case of the tiger mosquito, *Aedes albopictus* in Europe
15:25 * *Kaur Rupinder*: Comparative morphology and evolutionary genomics provide useful clues for management of an emerging *Drosophila* pest
15:40 **brief outline of the related posters (Rossi-Stacconi, Giacomelli, Grzeskowiak, Baracchi, Esposito, Sofo, Kaur, Coman, Rigosi) and coffee break**

Part 2: Plants and microbes

- 16:45 *Roberto Papa*: The cost of domestication (if any): can we get a refund?
17:15 *Giuseppe Vendramin*: Adaptation of Mediterranean forest species to climatic gradients: a forest genetic perspective
17:45 *Chris Creevey*: Evolutionary metagenomic analysis of the rumen microbial community of cattle
18:00 *Andrea Campisano*: How grapevine got pimples. The interkingdom horizontal transfer of an unusual symbiont
18:15 *Irene Stefanini*: Social insect intestines are mating nests for *Saccharomyces cerevisiae*
18:30 * *Sonia Ciccazzo*: Evolution of complex microbial communities for biotransformation of tar produced by biomass pyrolysis
18:45 * *Anna Sandionigi*: A hypothesis on the interactions between microbiomes in a parasitic relationship: The case of *Apis mellifera* and its parasite *Varroa destructor*

- 20:30 **Event at MuSe (open to the public, in Italian): "DIMMI CON CHI VIVI E TI DIRÒ CHI SEI" with Maurizio Casiraghi, Duccio Cavalieri, Stefano Turillazzi, Marco Ferraguti.**

* denotes talk from a PhD student

Congress chairs: Lino Ometto and Omar Rota-Stabelli (FEM).

Organizing committee: Massimo Bernardi and Michele Menegon (MuSe); Olivier Jousson (CIBIO); Cristina Castellani, Alessandro Gretter, Jacopo Tomasi, Maria Cristina Mattei, and Floriana Marin (FEM event office); Samuela Caliarì and Massimiliano Tardio (MuSe event office); Silvia Ghirotto (University of Ferrara).

Scientific advisory board: Gianfranco Anfora, Heidi Hauffe, Carlotta de Filippo, Lino Ometto, Dan Sargent, Omar Rota-Stabelli, Claudio Varotto, Cristiano Vernesi (FEM), Massimo Bernardi and Michele Menegon (MuSe), Manuela Sironi (Scientific Institute IRCCS MED EA), Ivan Scotti (INRA), Silvio Renesto (University of Insubria), SIBE council (Gabriele Gentile, Maurizio Casiraghi, Marco Passamonti, Giorgio Binelli, Marco Ferrari, Silvia Ghirotto, Stefano Mazzotti, Marco Ferraguti).

THURSDAY 29 AUGUST

EVOLUTIONARY GENOMICS AND BIOINFORMATICS

- 09:00 Chairs introduction (Manuela Sironi and Dan Sargent)
- 09:05 *Francois Balloux*: Reconstructing human genetic diversity in space and time
- 09:45 *Monica di Paola*: Evolution and genome divergence determine virulence traits in *Candida* spp.
- 10:00 *Paolo Gratton*: “Bad” species? Restriction sites associated DNA sheds light on the evolution of the *Erebia tyndarus* species complex
- 10:15 * *Francesco Rubino*: A framework for the evolutionary study of uncharacterised microbial communities
- 10:25 * *Valentina Cappelletti*: Systems biology approach for the identification of genetic determinants of colony morphology switch in natural *S. cerevisiae* strain
- 10:35 **brief outline of the related posters (Vicario, Ometto, Scolari, Plazzi, Vicario, Gargiulo, Mancini, Milani, Cagliani, Hoban) and coffee break**
- 11:10 *Christian Schlötterer*: *Drosophila* population genomics
- 11:50 * *Sukanya Ramamsamy*: Bioinformatic and evolutionary analysis of chemoreceptors and related proteins in a grapevine pest
- 12:05 *Caroline Scotti-Saintagne*: Evidence of disruptive selection in the adaptation of two closely related species of tropical trees
- 12:20 *Marco Passamonti*: Structure, transcription and variability of metazoan mitochondrial genome: perspectives from an unusual mitochondrial inheritance system
- 12:35 * *Karen Siu-Ting*: Concatabominations: identifying unstable taxa in morphological and genomic datasets using Safe Taxonomic Reduction
- 12:50 * *Wasiu Akanni*: Development of a Maximum Likelihood and Bayesian Supertree method and the analysis of the Tree of Life
- 13:05 **lunch box provided**

EVOLUTIONARY MEDICINE AND HEALTH

- 14:10 Chairs introduction (Carlotta de Filippo and Heidi Hauffe)
- 14:20 *Eugene Rosemberg & Ilana Zilber*: Variation and Evolution of Holobionts
- 15:00 *Samanta Michelini*: Bifidobacteria in gut microbiota of *Callithrix jacchus* L. (common marmoset): their relationship with primate and non primate bifidobacterial microbial ecology
- 15:15 *Giacinto Libertini*: Evidence for aging theories from the study of a hunter-gatherer people (Ache of Paraguay)
- 15:30 *Lisa Rizzetto*: Diverse strain immune reactivity shapes fungal inflammation or tolerance
- 15:45 *Lorenza Putignani*: Gut microbiota in cystic fibrosis (CF) patients: a combined -omic translational workflow
- 16:00 * *Diego Forni*: An evolutionary view of antigen processing and presentation across different timescales
- 16:10 **outline of the related posters (Baracchi, Cavallero, Mezzavilla, Libertini, Fascio, Berra) and coffee break**
- 17:00 *Duccio Cavalieri*: Systems level analysis of human fungal populations: passengers colonizers and invaders

NEW PHD ON THE BLOCK (SPECIAL SESSION)

- 17:30 Chairs introduction (Alessandro Gretter and Lino Ometto)
- 17:30 * *Luisa Bresadola*: Genetic variability in the promoter of miR397 in *Picea abies*
- 17:40 * *Claudia Scavariello*: Non-LTR retrotransposon R2 molecular characterization and activity in *Bacillus rossius* (Phasmida, Bacillidae)
- 17:50 * *Emanuele Rigato*: Effects of cryptic genetic variation on innovability in *Escherichia coli*
- 18:00 * *Laura del Latte*: Towards a phylogeny of the geophilomorph centipede genus *Stenotaenia*
- 18:10 * *Davide Guerra*: The control regions of the male- and female-transmitted mitochondrial DNAs in *Musculista senhousia* (Bivalvia Mytilidae)
- 18:20 * *Johannes De Goeve*: From evolutionary trees to behavioural ecology: exploiting SAM to visualize spatio-temporal movement patterns
- 18:30 * *Francesca Tassi*: A comparison of linguistic and genomic diversity in Europe
- 18:40 **outline of the related posters (Baccei, Bernini, Giovannini, Salvagnin, Poli, Bisanti, Portera, Andreatta)**

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FRIDAY 30 AUGUST

BIODIVERSITY 3D: THE INTERRELATIONS AMONG GENES, SPECIES, AND ECOSYSTEMS

- 09:00 Chairs introduction (Ivan Scotti and Cristiano Vernesi)
- 09:10 *Mike Bruford: Genes, species and ecosystem services: do we have the tools to pursue the paradigm?*
- 09:50 *Elisabetta Versace: Experimental evolution uncovers habitat-dependent fitness dynamics among *Wolbachia* strains in *Drosophila melanogaster**
- 10:05 *David Baracchi: Intra or inter specific variability? Wing morphology and chemical epicuticular compounds reveal a cryptic species of Stenogastrinae (Hymenoptera: Vespidae)*
- 10:20 *Emanuele Serrelli: A new look at the Extended Evolutionary Synthesis*
- 10:35 **brief outline of the related posters (Ruggiero, Meraner, Battocchi, Cornetti, Rivero, Heams, Bertoncini, Bonosi, Benazzo, BARCODING) and coffee break**
- 11:10 *Krystal Tolley: Exploring the history of Chameleons*
- 11:30 *Ulrike Obertegger: Cryptic diversity of *Synchaeta* spp. (Rotifera, Monogononta) in mountain lakes: relationships with environmental parameters*
- 11:45 *Elena Mosca: Effects of climate on fine-scale spatial genetic structure in four alpine keystone species*
- 12:00 *Saverio Vicario: Mean phylogenetic surprise: a unit of measure for describing changes across biological communities*
- 12:15 **short break**
- 12:20 * *Luca Cornetti: Small effective population size and fragmentation in Alpine populations of *Bombina variegata*: the combined effects of recent bottlenecks and postglacial recolonization*
- 12:30 * *Emanuele Fasola: Microevolution due to pollution in Amphibians*
- 12:40 * *Alexis Marchesini: Amphibian biodiversity in an alpine region: a multi-level approach. Patterns, processes and conservation implications*
- 12:50 * *Verena Pichler: Evidence of recombination on the “speciation island” X-chromosome centromeric region between the malaria mosquitoes *Anopheles gambiae* and *An. coluzzii**
- 13:00 **lunch box provided**

LIFE THROUGH TIME: PALEOBIOLOGY AND PALEOBIODIVERSITY

Part 1: From fossils to biodiversity

- 14:00 Chairs introduction (Silvio Renesto and Giorgio Binelli)
- 14:05 *Mike Benton: Origin of biodiversity*
- 14:45 *Giorgio Carnevale: Cretaceous Ophidiiform fish from North-Eastern Italy: systematics and evolutionary implications*
- 15:05 *Evelyn Kustatscher: From the Palaeozoic to the Mesozoic - how did the flora change in Europe?*
- 15:25 *Stefano Dominici: Macroevolutionary emergence of onshore-offshore gradients in community turnover*
- 15:45 *Silvio Renesto: The diversity and biogeographic significance of the Norian (late triassic) terrestrial reptiles from northern Italy*
- 16:05 **brief outline of the related posters (Rota-Stabelli, Bauer) and coffee break**

Part 2: Paleo-evo-devo

- 16:45 Chairs introduction (Massimo Bernardi)
- 16:50 *Massimo Delfino: Developmental palaeontology from an Italian perspective*
- 17:10 *Giuseppe Fusco: Fossilized ontogenies in evo-devo: the case of trilobites*
- 17:30 * *Kathleen Bauer: Early ontogeny in a fossil ginkgophyte from the Triassic resembles modern *Ginkgo biloba**
- 17:40 **short break**

Part 3: Molecules: from Precambrian to Present

- 17:45 Chairs introduction (Omar Rota Stabelli)
- 17:50 *Davide Pisani: Molecular palaeobiology of early animal evolution*
- 18:20 *Domenico D’Alelio: Small, libertine and fit: did recombination and sex promote the evolutionary success of microalgae, from the origin of life to present days?*
- 18:35 * *Carlos J. Rivera-Rivera: Single-gene data filtering for multi-gene phylogenetics: elucidating the higher-level phylogeny of Siluriformes*
- 18:50 *Massimo Mezzavilla: NeON: an R package to estimate human effective population size and divergence time from patterns of linkage disequilibrium between SNPs*

20:00 **BUFFET DINNER AT MuSE. awards, Toasting**

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POSTERS

1. **A comparative analysis of Mitochondrial ORFans: new clues on their origin and role in species with Doubly Uniparental Inheritance of Mitochondria.** L. Milani, F. Ghiselli, D. Guerra, S. Breton, M. Passamonti
2. **A genetic engineering approach to study the adaptation of the grapevine moth *Lobesia botrana* from its wild hosts to *Vitis*.** U. Salvagnin, M. Malnoy, S. Martens, G. Anfora
3. **A molecular approach to conservational issues: the case of *Austropotamobius italicus* (Crustacea: Decapoda) in Northern Italy.** G. Bernini, A. Bellati, I. Pellegrino, A. Negri, P. Galeotti
4. **Allelic variation at the immunity gene TEP1 in an area of hybridization between the malaria mosquitoes *Anopheles gambiae* and *An. coluzzii*.** E. Mancini, M. I. Spinaci, B. Caputo, V. Pichler, J. L. Vicente, A. Rodrigues, M. Pombi, V. Petrarca, J. Pinto, A. Della Torre
5. **Asymmetric social interactions through left and right antenna in honey bees.** E. Rigosi, L. J. Rogers, E. Frasnelli, G. Vallortigara
6. **Bacterial community structure changes during summer in high alpine fresh water springs.** A. Esposito, M. Engel, L. Daprà, L. Brusetti
7. **Characterization and phylogenetic analysis of the *Vitis vinifera* gibberellin oxidases.** L. Giacomelli, O. Rota Stabelli, C. Moser
8. **Conservation genetics of the Adriatic grayling. Recent and historical exotic imprints on native Adriatic *Thymallus thymallus* populations.** A. Meraner, L. Cornetti, A. Gandolfi
9. **Cryptic *Wolbachia* strains in closely related *Drosophila* species.** R. Kaur, S. Siozios, G. Anfora, O. Rota-Stabelli
10. **DNA barcoding and phylogenetic relationships in marine toxic dinoflagellate genus *Ostreopsis* based on mitochondrial genes.** C. Battocchi, S. Capellacci, S. Fraga, K. Aligizaki, C. Vernesi, A. Penna
11. **Epigenetics and symbiosis. The effect of *Varroa destructor* parasitic mite on honeybee (*Apis mellifera*) DNA methylation.** S. G. Baccei, V. Mangoni, M. Casiraghi
12. **Evidence for past and present hybridization in three Antarctic icefish species provides new perspectives in the study of an evolutionary radiation.** A. Benazzo, I. A. M. Marino, C. Agostini, M. Mezzavilla, S. M. Hoban, T. Patarnello, L. Zane, G. Bertorelle
13. **Evolutionary Aesthetics: How did the aesthetic attitude originally arise in the course of evolution?** M. Portera
14. **Genetic analyses of *Anopheles gambiae* and *An. coluzzii* populations from the “far-west” reveal habitat segregation and further population structure.** B. Caputo, D. Nwakanma, F. P. Caputo, M. Jawara, I. Dia, L. Konate, E. Mancini, V. Petrarca, J. Pinto, D. J. Conway, A. Della Torre
15. **Genetic variability and phylogeography in *Ascaris* spp. using nuclear and mitochondrial markers.** S. Cavallero, B. Gambetta, V. Perrone, F. Pacella, V. Snabel, M. Dutto, S. D'Amelio
16. **GeoKS: an automatic tool for estimating burnin and assessing convergence in MCMC Phylogenetic Inferences.** S. Vicario, S. Battagliero, G. Puglia, T. M. Creanza, G. Tria, G. Scioscia, P. Leo
17. **Host-adaptation of parasitoids to the newly introduced invasive species, *Drosophila suzukii*.** M. V. Rossi Stacconi, A. Grassi, D. Dalton, B. Miller, A. Loni, M. Ouantar, C. Ioriatti, V. Walton, G. Anfora
18. **Insight into genetic determinants of resting heart rate.** M. Mezzavilla, A. Iorio, M. Bobbo, M. Merlo, Sheila Ulivi, P. Gasparini, Gianfranco Sinagra
19. **Intraspecific variability of *Ginkgo biloba* leaves: implications for assessing ginkgophyte diversity in the fossil record.** K. Bauer, E. Kustatscher, M. Krings
20. **Is *Megachirella wachtleri* (Reptilia, Diapsida) a squamate?** M. Bernardi, S. Renesto
21. **Longitudinal structure and gene flow in a small population of *Eulemur collaris* in a fragment of littoral forest of south-eastern Madagascar.** S. Bertoncini, J. D'Ercole, F. Brisighelli, C. Capelli, S. Tofanelli, G. Donati
22. **Malocclusions and urolithiasis in the context of Evolutionary Medicine.** G. Libertini
23. **Mating-responsive genes from the testes and male accessory glands of the Mediterranean fruit fly, *Ceratitis capitata*.** F. Scolari, L. M. Gomulski, J. M.C. Ribeiro, P. Siciliano, A. Meraldi, M. Falchetto, A. Bonomi, M. Manni, P. Gabrieli, A. Malovini, R. Bellazzi, S. Aksoy, G. Gasperi, A. R. Malacrida
24. **Metabarcoding a diatom genus: cryptic diversity and Isolation by Time.** M. V. Ruggiero, D. Sarno, L. Barra, W. H.C.F. Kooistra, M. Montresor, A. Zingone
25. **Molecular evolution of flowering genes in grapevine.** L. Grzeskowiak, S. Lorenzi, M. S. Grandó

26. **NGS approach for investigating evolutionary transition from oviparity to viviparity in squamate reptiles.** *L. Cornetti, A. Benazzo, M. Bruford, G. Bertorelle, C. Vernesi*
27. **Phenomics of *Picea abies*. Characterization of phenotypic traits involved in long-term adaptation to climate change and their genetic base.** *L. Bonosi*
28. **Phenotypic plasticity: with a little help from a friend. Neurobiology supports Evolutionary Ecology.** *A. Gazzola, P. Galeotti, F. Brandalise, P. Rossi*
29. **Photoperiod-driven selection at human circadian regulatory loci and at risk variants for neuropsychiatric diseases.** *R. Cagliani, D. Forni, U. Pozzoli, C. Tresoldi, S. Riva, G. Menozzi, G. Comi, M. Clerici, M. Sironi*
30. **Phylogeny of *Asperula* L. sect. *Cynanchicae* (DC.) Boiss.: a starting effort.** *R. Gargiulo, E. Del Guacchio, O. De Castro, P. Caputo*
31. **Physiological and biochemical adaptive responses and defense mechanisms to withstand increasing ultraviolet radiation and temperatures in an Antarctic meiofauna organism.** *I. Giovannini, R. Guidetti, T. Altiero, M. Cesari, G. Montorfano, A. M. Rizzo, R. Bertolani, L. Rebecchi*
32. **“Play with evolution”: evolutionary games with “daily life” tools – activities for primary and secondary school teachers and students.** *M. Bisanti, A. Pederzoli, R. Guidetti*
33. **Prevention of refractive defects of vision by means of Evolutionary Medicine.** *G. Libertini*
34. **Sperm-seminal fluid interaction in a scenario of sperm competition.** *F. Poli, L. Locatello, M. B. Rasotto*
35. **SPOTG: planning online a conservation/population genetics study.** *S. M. Hoban, O. Gaggiotti, ConGRESS, G. Bertorelle*
36. **Stochastic gene expression and fitness.** *T. Heams*
37. **Sustainable management for increasing soil microbial diversity in a Mediterranean agro-ecosystem.** *A. Sofo, C. Xiloyannis, A. M. Palese, A. Scopa*
38. **The Biovel Project: foolproof phylogenetic workflows for Biodiversity studies.** *S. Vicario, B. Balech, G. Donvito, P. Notarangelo, G. Pesole,*
39. **The complete mitochondrial genome of *Solemya velum* (Mollusca: Bivalvia) and its relationships with Conchifera.** *F. Plazzi, A. Ribani, M. Passamonti*
40. **The contribution of network and spatial analysis in understanding how diseases pressure and ergonomic requirements moulded evolution of insect societies.** *D. Baracchi, A. Cini*
41. **The draft genome of *Cardamine resedifolia*: genomic tools to investigate plant adaptation to high altitude.** *L. Ometto, M. Li, C. Varotto*
42. **The exemplar co-radiation of insects and plants: phylogenomic perspectives, paleo-ecological implications, agricultural applications.** *O. Rota Stabelli*
43. **The expression of the emotions: Darwin’s scientific photographs.** *U. Fascio*
44. **The influence of fertilization in chlorophyll content of dominant legumes and grasses in a permanent pasture of low hills in Banat (Timis county).** *M. Coman*
45. **The role of the nest in the evolution of collective defence against pathogens in social insects.** *D. Baracchi, G. Mazza, S. Turillazzi*
46. **The touch of death: Killer mediated contact inhibition and Hsp12p secretion determines differential fitness in a community of grape yeast isolates.** *D. Rivero, L. Bernà, E. Baruffini, I. Stefanini, D. Cavalieri*
47. **Unraveling the nature of dormancy: has diapause evolved from a starvation-like response in *Drosophila melanogaster*?** *G. Andreatta, R. Costa*
48. **What does reciprocal altruism have to do with language?** *I. Berra*