

## Symposium programme

### Sunday 31 July

University Main Building, Ground Floor Lobby (Fabianinkatu 33)

12.00–18.00 Check-in

### Monday 1 Aug

Ground floor lobby

8.00–17.00 Check-in continues

University Great Hall (entrance from the Senate Square / Unioninkatu 34)

9.00–9.45 Symposium opening + group photo

9.45–10.15 Coffee break

Room 1, University Main Building 1<sup>st</sup> floor

10.15–11.00 Keynote: Lichen population genetics in the era of high throughput sequencing

Silke Werth (page 31)

11.00–12.30 History of lichen research (T. Ahti and M. Hyvärinen)

11.00–11.30 **Lichens in the history of botany**

Per Magnus Jørgensen (page 41)

11.30–11.50 **The early history of Canadian lichenology**

Irwin Brodo, Stephen Clayden, Trevor Goward (page 41)

11.50–12.10 **William Nylander, the defender of lichen autonomy**

Orvo Vitikainen (page 42)

12.10–12.30 **Discovering Australia's lichens – from seafaring collectors to a continental flora**

Gintaras Kantvilas (page 42)

12.30–13.30 Lunch

Room1

13.30–15.00 Early evolution of lichens (S.D. Leavitt and J. Rikkinen)

13.30–14.00 **Amber as source of Mesozoic and Cenozoic cryptogams**

Alexander Schmidt, Ulla Kaasalainen, Christina Beimforde, Jochen Heinrichs, Jouko Rikkinen (page 43)

14.00–14.20 **Lichens in Paleogene amber**

Ulla Kaasalainen, Jouko Rikkinen, Alexander R. Schmidt (page 43)

14.20–14.40 **Lichen-associated microfungi from European Paleogene amber**

Elina Kettunen, Alexander Schmidt, Paul Diederich, Heinrich Grabenhorst, Jouko Rikkinen (page 44)

14.40–15.00 **Insight into diversification of lichen-forming fungi in western North America: from the Neogene through the Quaternary**

Steve Leavitt (page 44)

15.00–15.30 Coffee break

**Parallel sessions: Room 1****15.30 – 17.30 Lichen ecology and biogeography I (B. McCune and P. Löhmus)**

- 15.30–15.50 **Is it the more lichens the merrier, for open-air rock-art conservation?**  
Joana Marques, António Batarda Fernandes, Cláudia Oliveira, Graciela Paz-Bermúdez (page 48)
- 15.50–16.10 **Structure and form of an Atacama fog-oasis lichen community across a fog gradient**  
Daniel Stanton, Peter Nelson, Reinaldo Vargas Castillo (page 48)
- 16.10–16.30 **Effects of highly specific lichenicolous fungi on the growth of their lichen hosts**  
Sonia Merinero, Yngvar Gauslaa (page 49)
- 16.30–16.50 **Spatial and substrate relationships of the functional redundancy in Mediterranean lichen communities.**  
Paolo Giordani, Paola Malaspina (page 49)
- 16.50–17.10 **Are climatic factors or habitat variation more important for epiphytic lichen richness? A case study from redwood forests (page 50)**  
Rikke Reese Naesborg, Cameron Williams
- 17.10–17.30 **Lichen richness and composition in pine dominated post-fire stands: impact of region, time since fire, harvest and forest structure**  
Piret Löhmus, Aino Hämäläinen (page 50)

**Parallel sessions: Room 13, University Main Building, 2<sup>nd</sup> floor****15.30–17.30 Parmeliaceae (L. Myllys and P.K. Divakar)**

- 15.30–15.50 **Integrative taxonomy of fungi: a review from the progress in Parmeliaceae**  
Ana Crespo, Pradeep K. Divakar (page 45)
- 15.50–16.10 **Phylogeny and species delimitation in the lichen genus *Cetrelia***  
Kristiina Mark, Tiina Randlane, Andres Saag (page 45)
- 16.10–16.30 **Infrageneric classification and biogeography of the genus *Bryoria* based on phylogenetic analyses of six gene loci**  
Leena Myllys, Raquel Pino-Bodas, Saara Velmala, Li-Song Wang, Trevor Goward (page 46)
- 16.30–16.50 **Systematics of the shrubby-apotheciate corticolous species of the genus *Usnea* Adans. (Parmeliaceae) in Southern Brazil**  
Alice Gerlach, Pradeep K. Divakar, Ana Crespo, Rosa Mara Borges da Silveira, Philippe Clerc (page 46)
- 16.50–17.10 **The genus *Parmotrema* in New Zealand: investigating species diversity and phylogenetic relationships**  
Dan Blanchon, Sofia Chambers, Peter de Lange, Pradeep K. Divakar (page 47)
- 17.10–17.30 **Picking holes in traditional species delimitations: an integrative taxonomic reassessment of *Parmotrema perforatum* group (Parmeliaceae, Ascomycota)**  
Todd J. Widhelm, Robert S. Egan, Francesca R. Bertolotti, Matt J. Asztalos, Steven D. Leavitt, H. Thorsten Lumbsch (page 47)

**Ground floor lobby****17.30–18.30 Poster session I**

**Topics: Lichen ecology and biogeography, Parmeliaceae, Peltigerales, Early evolution of lichens, History of lichen research, and Lichens at extremes**

**19.00–20.30 Welcome reception  
City Hall, Pohjoisesplanadi 11–13**

## Tuesday 2 Aug

### Room 1

#### 8.30–9.15 Keynote: Three powerful tool sets in lichen ecology: critical issues and opportunities.

Bruce McCune (page 33)

#### 9.15–10.35 Lichen ecology and biogeography II (B. McCune and P. Löhmus)

- 9.15–9.35 **Thallus morphology rather than cyanobiont type determines photosynthetic performance in cyanobacterial lichens (Lichinomycetes)**  
Burkhard Büdel, Dirk C.J. Wessels, Matthias Schultz, Hans Reichenberger, Sebastian T. Meyer (page 51)
- 9.35–9.55 **Network analyses of lichens and their contribution to theoretical studies on mutualism**  
Pierre-Luc Chagnon, Nicolas Magain, Jolanta Miadlikowska, François Lutzoni (page 51)
- 9.55–10.15 **Taxon-free detection of cross-scale assembly processes in lichen epiphyte communities**  
Jessica Coyle (page 52)
- 10.15–10.35 **Can large-scale biodiversity monitoring tell us about rare lichens? Re-evaluating the distribution and ecology of *Cladonia rei* in Alberta, Canada**  
Diane Haughland, Ashley Hillman, Ermias Azeria (page 52)

#### 10.35–11.00 Coffee break

### Room 1

#### 11.00–12.30 Evolution of lichen symbiosis (F. Lutzoni and F. DalGrande)

- 11.00–11.18 **Symbiotically dispersing lichens as photobiont nurseries,**  
Jouko Rikkinen (page 53)
- 11.18–11.36 **A panoramic path along multiple symbiotic patterns: together or not together?**  
Lucia Muggia, Claudio Gennaro Ametrano, Martin Grube, Samantha Fernandez-Brime, Mats Wedin (page 53)
- 11.36–11.54 **Diversity and biogeography of symbiotic microalgae of the lichen genus *Psoroma***  
Chae Haeng Park, Eun Hye Kim, Hyun-Ju Noh, Arve Elvebakk, Soon Gyu Hong (page 54)
- 11.54–12.12 **Global, continental, and local genetic structure in *Lobaria pulmonaria* and its photobiont *Dictyocholeopsis reticulata***  
Christoph Scheidegger, Olga Nadyeina, Ioana Violeta Ardelean, Saran Cheenacharoen, Nuru Nyazirari Kitara, Andrea Wiedmer, Silke Werth (page 54)
- 12.12–12.30 **Is a lichen an evolutionary individual?**  
Eric Libby, Joshua Grochow, David Wolpert (page 55)

#### 12.30–13.30 Lunch

### Room 1

#### 13.30–15.00 Systematics and phylogenetics I (T. Spribille and C. Gueidan)

- 13.30–13.55 **Macroclimate and coevolutionary forces influence fungal-algal association patterns in *Protoparmelia***  
Garima Singh, Francesco Dal Grande, Pradeep K. Divakar, Jürgen Otte, Ana Crespo, Imke Schmitt (page 56)
- 13.55–14.20 **Diversity of lecideoid lichens in temperate forests of South America: new insights from morphological and molecular studies**  
Pamela Rodriguez-Flakus, Christian Printzen (page 56)
- 14.20–14.40 **Molecular study of Verrucariaceae: An Icelandic perspective**  
Starri Heiðmarsson, Jolanta Miadlikowska, Francois Lutzoni (page 57)
- 14.40–15.00 **Evolution of the genus *Ochrolechia* based on a seven-marker phylogeny and a worldwide sampling**  
Martin Kukwa, Damien Ertz, Imke Schmitt (page 57)

**15.00–15.30 Coffee break****Parallel sessions: Room 1****15.30–16.30 Extra session: Access to lichen biodiversity data (M. Hyvärinen)****15.30–16.00 Creating a lichen portal for world-wide lichen collections**

Thomas H. Nash III (page 58)

**16.00–16.30 Lichens and global biodiversity data**

Dmitry Schigel (page 58)

**16.30–17.30 Cladoniaceae (S. Stenroos and R. Pino Bodas)****16.30–16.55 Phylogeny of the family Cladoniaceae (Lecanorales, Ascomycota)**

Raquel Pino-Bodas, Soili Stenroos, Thorsten Lumbsch, Teuvo Ahti (page 59)

**16.55–17.15 Distribution patterns of the Mediterranean Cladoniaceae**

Ana Rosa Burgaz, Clara Rodríguez-Arribas, Teuvo Ahti (page 59)

**17.15–17.30 Monster monograph of the Cladoniaceae**

Teuvo Ahti, Soili Stenroos (page 60)

**Parallel sessions: Room 13****15.30–17.30 Peltigerales (J. Miadlikowska and B. Moncada)****15.30–15.48 The lichen family Lobariaceae in the Galapagos Islands: Molecular data suggest a high degree of endemism**

Bibiana Moncada, Frank Bungartz, Robert Lücking (page 61)

**15.48–16.06 Recent and rapid radiation of the lichen genus *Sticta* in the Western Indian Ocean islands**

Antoine Simon, Nicolas Magain, Bernard Goffinet, Emmanuël Sérusiaux (page 61)

**16.06–16.24 Is *Pseudocyphellaria lacerata* Degel. (Ascomycota: Lobariaceae) really in Britain?**

Kristine Bogomazova, Rebecca Yahr, Christopher Ellis, Ruth Mitchell, Andrea Britton, Sarah Woodin (page 62)

**16.24–16.42 Cryptic biodiversity and symbiotic patterns of association within the trimembered section *Chloropeltigera***

Carlos J Pardo-De la Hoz, Nicolas Magaín, François Lutzoni, Silvia Restrepo, Jolanta Miadlikowska (page 62)

**16.42–17.00 Genotype diversity of *Nostoc* symbionts of *Peltigera* species in grassland and forest habitats of Estonia**

Inga Jüriado, Maarit Jylhä, Ulla Kaasalainen, Jouko Rikkinen (page 63)

**17.00–17.18 A first attempt at a global phylogenetic revision of the genus *Coccocarpia* (Ascomycota: Peltigerales)**

Luis Fernando Coca, Robert Lücking (page 63)

**17.18–17.36 'Dispositio Psoromatum et Pannariarum' – Version 4.0**

Arve Elvebakk, Eli Helene Robertsen, Soon Gyu Hong, Chae Haeng Park (page 64)

**1<sup>st</sup> floor corridor****17.30–18.30 Poster session II****Topics: Systematics and phylogenetics, Species and populations, Cladoniaceae, and Tropical lichens****19.30–23.00 IAL8 Dinner****Restaurant Saaristo on Klippan island, boat connection at Ehrenströmintie 14**

## Wednesday 3 Aug

### Room 1

#### 8.00–8.45 Keynote: The new-er systematics: taking phylogenetics to the next level

Ward Wheeler (page 35)

#### 8.45–10.15 Species and populations (C. Printzen and S. Perez-Ortega)

- 8.45–9.00 **Phylogeography of the bipolar *Mastodia tessellata* (Verrucariaceae) reveals new insights into the origin of the Antarctic lichen biota**  
Isaac Garrido-Benavent, Asunción de los Ríos Murillo, Fernando Fernández-Mendoza, Sergio Pérez-Ortega (page 65)
- 9.00–9.15 **Phylogenetic structure and diversity of *Cetraria aculeata* in western Eurasia and east Africa: Insights offered by microsatellite data**  
Tetiana Lutsak, Christian Printzen (page 65)
- 9.15–9.30 **Genomic footprints of ecotypic differentiation along an elevational cline in populations of a lichen-forming fungus**  
Francesco Dal Grande, Rahul Sharma, Anjali Meiser, Gregor Rolshausen, Bagdevi Mishra, Marco Thines, Jürgen Otte, Burkhard Büdel, Markus Pfenninger, Imke Schmitt (page 66)
- v 9.30–9.45 **Genetic variation in *Xanthomendoza fallax* and its overlap with genetic variation of its host *Quercus gambelii***  
Blake Sanford, Sarah Heelis, T. Heath Ogden, Nalini Nadkarni, Emily Holt (page 66)
- 9.45–10.00 **Asymmetric specialization in myco- and photobionts in lichen communities from Southern Patagonia**  
Ulrike Ruprecht, Roman Türk, Monika Wagner, Ann-Marie Zein, Robert R. Junker (page 67)
- 10.00–10.15 **Proposal to use mating type locus (MAT) sequences to account for the interbreeding criterion in lichen species delimitation**  
Lars Ludwig (page 67)

#### 10.15 – 10.40 Coffee break

### Room 1

#### 10.40–11.50 Lichen ecology and biogeography III (B. McCune and P. Löhmus)

- 10.40–11.10 **The inland rainforest of western North America – An uncertain refugia for oceanic lichens in a changing world**  
Darwyn Coxson, Trevor Goward (page 68)
- 11.10–11.30 **Lichens across Antarctica: climate and performance**  
Allan Green (page 68)
- 11.30–11.50 **Broad-scale distribution of epiphytic hair lichens correlates stronger with climate and nitrogen deposition than with forest structure**  
Per-Anders Esseen, Magnus Ekström, Bertil Westerlund, Kristin Palmqvist, Bengt Gunnar Jonsson, Anton Grafström, Göran Ståhl (page 69)

#### 12.20–17.00 Visit to Vallisaari and Suomenlinna Fortress Islands

Boat connection from the Old Market Hall (south from the Market Square), m/s Aava

#### 19.00–22.00 Garden Party

Kaisaniemi Botanic Garden, Unioninkatu 44

## Thursday 4 Aug

### Room 1

#### 8.30–9.15 Keynote: Biosphere – atmosphere interactions and feedbacks

Markku Kulmala (page 37)

#### 9.15–10.35 Lichens in a changing environment I (P.D. Crittenden and C. Ellis)

- 9.15–9.35 **Lichens and climate change: the problem of scale and non-analogue climates**  
Christopher Ellis (page 70)
- 9.35–9.55 **Can the soil crust lichen *Psora decipiens* acclimatise to changing environments?**  
Laura Williams, Claudia Colesie, Anna Ullmann, Martin Westberg, Mats Wedin, Burkhard Büdel (page 70)
- 9.55–10.15 **Lichen functional diversity as an ecological indicator of climate change**  
Paula Matos, Pedro Pinho, Alice Nunes, Amadeu Soares, Cristina Branquinho (page 71)
- 10.15–10.35 **A revised Rydzak's Drought Hypothesis for a changing environment**  
Stefano Bertuzzi, Federica Bove, Danijela Kodnik, Francesco Panepinto, Elisa Pellegrini, Cristina Nali, Giacomo Lorenzini, Mauro Tretiach (page 71)

#### 10.35 – 11.00 Coffee break

### Parallel sessions: Room 1

#### 11.00–12.30 Lichens in a changing environment II (P.D. Crittenden and C. Ellis)

- 11.00–11.30 **Lichen response to nitrogen enrichment**  
Peter D. Crittenden, Erika J. Hogan, Niall F. Higgins (page 72)
- 11.30–11.50 **Lichen-based national critical loads for nutrient nitrogen and acid deposition in forests of the United States**  
Linda Geiser, Heather Root, Sarah Jovan, Larry St. Clair, Donna Schwede (page 72)
- 11.50–12.20 **Does climate modulate the effect of ammonia on lichen diversity?**  
Esteve Llop, Xavier Pié, Laura Aguilhaume, Anna Ávila, María López-Aizpún, David Elustondo, Pedro Pinho, Cristina Branquinho (page 73)
- 12.20–12.30 **Phosphatase activity in nitrophobic and nitrophytic lichens**  
Gabrielle Brown, Andreas Beck, Trista Crook, Peter Crittenden (page 73)

### Parallel sessions: Room 13

#### 11.00–12.30 Systematics and phylogenetics II (T. Spribille and C. Gueidan)

- 11.00–11.30 **Studying substrate associations of lichens with phylogenetic comparative and genomic methods**  
Philipp Resl, Helmut Mayrhofer, Toby Spribille (page 74)
- 11.30–11.50 **A natural classification of the Lichinomycetes**  
Maria Prieto, Mats Wedin, Matthias Schultz (page 74)
- 11.50–12.10 **Phylogenetic relationships among extremotolerant rock-inhabiting fungi and their associations with algae**  
Claudio Gennaro Ametrano, Kerry Knudsen, Martin Grube, Laura Selbmann, Lucia Muggia (page 75)
- 12.10–12.30 **A revisionary synopsis of the Trypetheliaceae recognizes 15 genera and increases the number of species from 280 to 435**  
André Aptroot, Robert Lücking (page 75)
- 12.30–12.50 **Co-occurrence of closely related genotypes in the morphologically variable script lichen (*Graphis scripta*) complex (Ascomycota: Graphidaceae)**  
Ekaphan Kraichak, Robert Lücking, H. Thorsten Lumbsch (page 76)

#### 12.30–13.30 Lunch

**Parallel sessions: Room 1****13.30–15.00 Lichens in a changing environment III (P. Crittenden and C. Ellis)**

- 13.30–13.48 **Effects of habitat fragmentation on the taxonomic, phylogenetic and functional diversity of epiphytic communities of beech forests**  
Pilar Hurtado, Gregorio Aragón, María Prieto, Isabel Martínez (page 80)
- 13.48–14.06 **Coupling genetic and ecological niche modelling of two epiphytic lichens with contrasting dispersal modes**  
Rocío Belinchón, Rebecca Yahr, Chris Ellis (page 80)
- 14.06–14.24 **Interception of simulated N pollution by *Cladonia subtenuis***  
Natalie Howe, John Dighton, Dennis Gray (page 81)
- 14.24–14.42 **The genetic diversity of a widespread epiphytic lichen *Usnea subfloridana* (Parmeliaceae, Ascomycota) in response to alkaline dust pollution**  
Polina Degtjarenko, Liis Marmor, Tiiu Tõrra, Michèle Lerch, Andres Saag, Tiina Randlane, Christoph Scheidegger (page 81)
- 14.42–15.00 **Biomonitoring of atmospheric deposition from petrochemical industry in Thailand by the lichen *Parmotrema tinctorum* (Despr. ex Nyl.) Hale**  
Chaiwat Boonpeng, Wetchasart Polyiam, Chutima Sriviboon, Duangkamon Sangiamdee, Tunsinee Jhampasri, Santi Watthana, Kansri Boonpragob (page 82)

**Parallel sessions: Room 13****13.30–15.00 Lichens at extremes (L. Sancho and B. Büdel)**

- 13.30–13.48 **Thermal acclimation in polar macro-lichens**  
Claudia Colesie, Anna Ullmann, Burkhard Büdel (page 77)
- 13.48–14.06 **Effects of UV radiation on growth in lichens**  
Ida Karina Kann, Dipa Paul Chowdhury, Knut Asbjørn Solhaug (page 77)
- 14.06–14.24 **Patterns of symbiont distribution along altitudinal gradients suggest environmental structuring in a lichen symbiosis**  
Anna Sadowska-Deś, Miklós Bálint, Francesco Dal Grande, Robert O'Hara, Jürgen Otte, Mercedes Vivas, Imke Schmitt (page 78)
- 14.24–14.42 **Transition to the glassy state in the lichen *Flavoparmelia caperata* (L.) Hale: molecular mobility in relation to thallus water content**  
Fabio Candotto Carniel, Beatriz Fernández-Marín, Erwann Arc, Teresa Craighero, José Manuel Laza, Mauro Tretiach, Ilse Kranner (page 78)
- 14.42–15.00 **Abscisic acid and saline stress responses in symbiotic green alga *Trebouxia* sp. TR9 isolated from the lichen *Ramalina farinacea***  
Ernesto Hinojosa-Vidal, Francisco Marco, Fernando Martínez-Alberola, Pedro Carrasco, Eva Barreno (page 79)

**15.00–15.30 Coffee break****Parallel sessions: Room 1****15.30–17.50 The diversity within (L. Muggia and J. U'Ren)**

- 15.30–15.50 **Visualizing fungal communities in lichens by fluorescent in situ hybridization**  
Veera Tuovinen, Hanna Johannesson, Göran Thor, Toby Spribille (page 86)
- 15.50–16.10 **Boreal endolichenic fungal community structure at local, regional, and global scales**  
Jana M. U'Ren, François Lutzoni, Jolanta Miadlikowska, Ashton Leo, Georgiana May, Ignazio Carbone, A. Elizabeth Arnold (page 86)
- 16.10–16.30 **Intrathalline diversity of lichen-inhabiting fungi assessed by metabarcoding of ITS2 region**  
Elisa Banchi, David Stankovic, Fernando Fernández-Mendoza, Alberto Pallavicini, Lucia Muggia (page 87)
- 16.30–16.50 **Evidence of multiple origin of the lichenicolous life habit in Helotiales**  
Ave Suija, Paul Diederich (page 87)

- 16.50–17.10 **Exploring the microbiome of the optionally lichenized fungus *Schizoxylon albescens***  
Samantha Fernandez-Brime, Lucia Muggia, Stefanie Maier, Martin Grube, Mats Wedin (page 88)
- 17.10–17.30 **Interaction networks between lichen-forming fungi and their photobionts in continental Antarctica**  
Sergio Pérez-Ortega, Isaac Garrido-Benavent, Sonia Rabasa, T.G. Allan Green, Leopoldo G. Sancho, Asunción de los Ríos (page 88)
- 17.30–17.50 **454 amplicon pyrosequencing as an accurate tool to reveal the concealed microalgal diversity inside a single thallus**  
Patricia Moya, Arantxa Molins, Fernando Martínez-Alberola, Eva Barreno (page 89)

#### Parallel sessions: Room 13

##### 15.30–17.30 Lichen conservation (J. Pykälä and C. Scheidegger)

- 15.30–15.50 **Conservation of pyrenocarpous lichens in Finland**  
Juha Pykälä, Leena Mylly, Annina Launis (page 83)
- 15.50–16:10 **Impacts of biofuel harvest, retention forestry and prescribed burning on epiphytic lichens in boreal pine-dominated forests**  
Aino Hämäläinen, Jari Kouki, Piret Lõhmus (page 83)
- 16:10–16:30 **The impacts of sea-level rise on coastal lichens: A case study in the Mid-Atlantic Coast Plain of eastern North America**  
Jessica Allen, James Lendemer (page 84)
- 16.30–16.50 **Population size of *Anzia centrifuga* and other lichen endemics of Porto Santo (Portugal)**  
Laurens Sparrius, André Aptroot, Harrie Sipman, Israel Pérez-Vargas, Paula Matos, Alice Gerlach, Maaïke Vervoort (page 84)
- 16:50–17:10 **Colonization, identification and conservation of *Bactrospora dryina* in the forests: lessons learned with polymorphic fungus-specific microsatellite markers**  
Olga Nadyeina, Daria Zarabska-Bożejewicz, Andrea Wiedmer, Carolina Cornejo, Christoph Scheidegger (page 85)
- 17:10–17:30 **Implication of species distribution modeling (SDM) for conservation of epiphytic lichens in forest landscapes**  
Lyudmyla Dymytrova, Silvia Stofer, Christian Ginzler, Urs-Beat Brändli, Christoph Scheidegger (page 86)

#### Ground floor lobby & the 1<sup>st</sup> floor corridor

##### 17.30–18.30 Poster session III & coffee break

**Topics: Lichens in a changing environment, Lichen conservation, The diversity within, Genomics and bioinformatics, Evolution of lichen symbiosis, and Lichen secondary metabolism**

#### Room 13

##### 18.00–18.30 Open group discussion: the IAL and lichen conservation (C. Scheidegger)

#### Room 1

##### 18.30–21.00 IAL General meeting



## Friday 5 Aug

## Room 1

## 8.30–9.15 Keynote

Aino Henssen Awardee

## 9.15–10.35 Genomics and bioinformatics I (I. Schmitt and D. Armaleo),

- 9.15–9.35 **Sequencing genomes of lichenized fungi: evaluating the metagenome skimming approach**  
Anjuli Meiser, Francesco Dal Grande, Jürgen Otte, Imke Schmitt (page 90)
- 9.35–9.55 **Genome-wide search, characterization and comparison of MAT gene families in lichen-forming fungi**  
David Pizarro, Pradeep Divakar, Ana Maria Creso, Grabriel Gutierrez Pozo (page 90)
- 9.55–10.15 **Evolution of the ribosomal RNA cistron in the *Rhizoplaca melanophthalma* species complex**  
Hanna Lindgren, Felix Grewe, Steven Leavitt, H. Thorsten Lumbsch (page 91)
- 10.15–10.35 **Bacterial microbiomes of lichen thalli: from observations to understanding interactions**  
Martin Grube, Tomislav Cernava, Ines Aschenbrenner, Armin Erlacher, Gabriele Berg (page 91)

## 10.35–11.00 Coffee break

## Parallel sessions: Room 1

## 11.00–12.40 Systematics and phylogenetics III (T. Spribille and C. Gueidan)

- 11.00–11.30 **The importance of spatio-temporal photobiont patterns for phylogenetic revisions and macroevolutionary studies of lichens: a worldwide case study of *Peltigera***  
Nicolas Magain, François Lutzoni, Emmanuël Sérusiaux, Camille Truong, Carlos Pardo de la Hoz, Dongling Niu, Trevor Goward, Mikhail Zhurbenko, Bernard Goffinet, Orvo Vitikainen, Jolanta Miadlikowska (page 95)
- 11.30–11.50 **From one to one hundred and eighty species: Phenotypical and ecogeographical diversification in the genus *Cora* (lichenized Basidiomycota: Hygrophoraceae)**  
Robert Lücking, Manuela Dal-Forno, Bibiana Moncada, Leidy Y. Vargas, Frank Bungartz, James D. Lawrey (page 96)
- 11.50–12.10 **Untangling *Usnea*: multi-locus concatenated and coalescent-based analyses reveal recent diversification history and clusters of mixed morphospecies in the section *Usnea***  
Kristiina Mark, Lauri Saag, Steven D. Leavitt, Susan Will-Wolf, Matthew P. Nelsen, Tiiu Tõrra, Andres Saag, Tiina Randlane, H. Thorsten Lumbsch (page 97)
- 12.10–12.30 **Umbilicariaceae – trait evolution and new generic concept**  
Evgeny A. Davydov, Derek Persoh, Gerhard Rambold (page 97)

## Parallel sessions: Room 13

## 11.00–12.40 Lichen secondary metabolism (K. Solhaug and J. Asplund)

- 11.00–11.20 **Secondary metabolites of lichens as potential allelochemicals**  
Michal Goga, Martin Bačkor, M. Bačkorová (page 92)
- 11.20–11.40 **Mycosporine screening in fresh and historic collections of Verrucariaceae – opportunities and limitations**  
Marylène Chollet-Krugler, Thi Thu Tram Nguyen, Joël Boustie, Holger Thüs (page 92)
- 11.40–11.55 **Do secondary metabolites influence lichen community structure?**  
Nicholas Zemp, Peter Nelson, Emily Holt (page 93)
- 11.55–12.10 **Acetone rinsing tolerance of *Cladonia foliacea***  
Edit Farkas, Rita Engel, Bernadett Biró, Zsolt Csintalan (page 93)

- 12.10–12.25 **Accumulation of metals by saxicolous *Aspicilia* species on different rock types**  
Alexander Paukov, Anzhelika Teptina (page 94)
- 12.25–12.40 **Biosynthesis of naphthoquinones, anthraquinones and depsides in the cultured mycobiont of the Christmas wreath lichen *Herpothallon rubrocinctum* (Arthoniales)**  
Elfie Stocker-Wörgötter, John A. Elix (page 94)

#### 12.40 – 13.30 Lunch

#### Parallel sessions: Room 1

#### 13.30–15.00 Genomics and bioinformatics II (I. Schmitt and D. Armaleo)

- 13.30–13.50 **Distinctive characters of *Nostoc* genomes in cyanolichens**  
Andrey Gagunashvili, Ólafur Andr sson (page 98)
- 13.50–14.10 **High throughput genome sequencing of a lichen-forming fungus *Usnea hakonensis* and its photobiont *Trebouxia* sp.**  
Mieko Kono, Yohey Terai, Yoko Satta (page 98)
- 14.10–14.30 **Transcriptomic analysis of the lichen photobiont *Trebouxia gelatinosa* subjected to dehydration and rehydration processes**  
Alice Montagner, Fabio Candotto Carniel, Marco Gerdol, Elisa Banchi, Chiara Manfrin, Lucia Muggia, Alberto Pallavicini, Mauro Tretiach (page 99)
- 14.30–14.50 **The nuclear, chloroplast and mitochondrial genomes of the symbiotic microalga *Trebouxia* sp. TR9 from the lichen *Ramalina farinacea* (L.) Ach**  
Fernando Mart nez-Alberola, Eva Del Campo, Leonardo Casano, Eva Barreno (page 99)

#### Parallel sessions: Room 13

#### 13.30–15.10 Tropical lichens (R. L cking, K. Nakswankul and A. Aptroot)

- 13.30–13.50 **A little explored lichen hot spot in tropical Asia: 66 new species and 666 new records from Sri Lanka**  
Gothamie Weerakoon, Andre Aptroot, Pat Wolseley, Robert L cking, H. Thorsten Lumbsch (page 100)
- 13.50–14.10 **Diversity of the lichen family Graphidaceae in Mangrove Forest, Eastern Thailand**  
Vasun Poengsungnoen, Kansri Boonpragob, Kawinnat Buaruang, Pachara Mongkolsuk (page 100)
- 14.10–14.30 **Lichen biodiversity in tropical islands: the case of the genus *Sticta* in Puerto Rico**  
Joel Mercado-Diaz, H. Thorsten Lumbsch (page 101)
- 14.30–14.50 **Drivers of lichen community composition in old growth and secondary lowland rain forests of northeast Borneo**  
Pat Wolseley, Holger Th s, Charles Vairappan, Paul Eggleton (page 101)
- 14.50–15.10 **Phylogenetic structure of lichen metacommunities in northern and northeastern Brazil**  
Edvaneide Lima, Robert L cking, Leonor Maia, Marcela C ceres (page 102)

#### 15.15–15.45 Coffee break

#### Room 1

#### 15.45–16.30 Farewell