





# GIORGIO BIANCHINI



UNIVERSITY OF  
**BATH**

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## PUBLICATIONS

- 2024 *Giorgio Bianchini, Martin Hagemann, Patricia Sánchez-Baracaldo*  
**STOCHASTIC CHARACTER MAPPING, BAYESIAN MODEL SELECTION, AND BIOSYNTHETIC PATHWAYS SHED NEW LIGHT ON THE EVOLUTION OF HABITAT PREFERENCE IN CYANOBACTERIA**  
Systematic Biology, 2024, DOI: 10.1093/sysbio/syae025
- 2024 *Giorgio Bianchini, Patricia Sánchez-Baracaldo*  
**TREEVIEWER: FLEXIBLE, MODULAR SOFTWARE TO VISUALISE AND MANIPULATE PHYLOGENETIC TREES**  
Ecology and Evolution, 2024, DOI: 10.1002/ece3.10873
- 2024 *Verena Nikeleit, Adrian Mellage, Giorgio Bianchin, Lea Sauter, Steffen Buessecker, Stefanie Gotterbarm, Manuel Schad, Kurt Konhauser, Aubrey L. Zerkle, Patricia Sánchez-Baracaldo, Andreas Kappler & Casey Bryce*  
**INHIBITION OF PHOTOTROPHIC IRON OXIDATION BY NITRIC OXIDE IN FERRUGINOUS ENVIRONMENTS**  
Nature Geoscience, 2024, DOI: 10.1038/s41561-024-01560-9
- 2021 *Giorgio Bianchini, Patricia Sánchez-Baracaldo*  
**SMAP: EVOLUTION OF INDEPENDENT, DEPENDENT AND CONDITIONED DISCRETE CHARACTERS IN A BAYESIAN FRAMEWORK**  
Methods in Ecology and Evolution, 2021, DOI: 10.1111/2041-210X.13540

- B. David A. Naafs, **Giorgio Bianchini**, Fanny M. Monteiro, Patricia Sánchez-Baracaldo*
- 2021 **THE OCCURRENCE OF 2-METHYLHOPANOIDS IN MODERN BACTERIA AND THE GEOLOGICAL RECORD**  
Geobiology, 2021, DOI: 10.1111/gbi.12465
- Patricia Sánchez-Baracaldo, **Giorgio Bianchini**, Jamie D Wilson, Andrew H Knoll*
- 2021 **CYANOBACTERIA AND BIOGEOCHEMICAL CYCLES THROUGH EARTH HISTORY**  
Trends in Microbiology, 2021, DOI: 10.1016/j.tim.2021.05.008
- Patricia Sánchez-Baracaldo, **Giorgio Bianchini**, Andrea Di Cesare, Cristiana Callieri, Nathan AM Christmas*
- 2019 **INSIGHTS INTO THE EVOLUTION OF PICOCYANOBACTERIA AND PHYCOERYTHRIN GENES (MPEBA AND CPEBA)**  
Frontiers in microbiology, 2019, DOI: 10.3389/fmicb.2019.00045
- Patricia Sánchez-Baracaldo, **Giorgio Bianchini**, John P Huelsenbeck, John A Raven, Davide Pisani, Andrew H Knoll*
- 2017 **REPLY TO NAKOV ET AL.: MODEL CHOICE REQUIRES BIOLOGICAL INSIGHT WHEN STUDYING THE ANCESTRAL HABITAT OF PHOTOSYNTHETIC EUKARYOTES**  
Proceedings of the National Academy of Sciences, 2017, DOI: 10.1073/pnas.1717417114

## SOFTWARE AND LIBRARIES



### TREEVIEWER

Cross-platform software to draw phylogenetic trees.

<https://treeviewer.org>



### sMAP

Evolution of Independent, Dependent and Conditioned discrete characters in a Bayesian framework.

<https://github.com/arklumpus/sMap>



### TREENODE

C# and R library to read, write and manipulate phylogenetic trees.

<https://github.com/arklumpus/TreeNode>



### VECTSHARP

A light library for C# vector graphics.

<https://github.com/arklumpus/VectSharp>



## MUPDFCORE

Multiplatform .NET Core bindings for MuPDF.

<https://github.com/arklumpus/MuPDFCore>

## EMPLOYMENT

2025 – TO DATE



University of Bath – Bath, UK

### RESEARCH ASSOCIATE

Department of Life Sciences, PI Prof. Tom Williams

2024 – 2025



University of Bristol – Bristol, UK

### SENIOR RESEARCH ASSOCIATE

School of Geographical Sciences, PI Prof. Patricia Sánchez-Baracaldo

2022 – 2024



University of Bristol – Bristol, UK

### RESEARCH ASSOCIATE

School of Geographical Sciences, PI Prof. Patricia Sánchez-Baracaldo

## EDUCATION

2017 – 2022



University of Bristol – Bristol, UK

### PHD PHYSICAL GEOGRAPHY

**THESIS:** Bayesian methods using genomic data to gain insights into the history of photosynthesis

**Supervisors:** Dr. Patricia Sánchez-Baracaldo and Dr. Fanny Monteiro

2015 – 2017



University of Pisa – Pisa, Italy

**MS CONSERVATION AND EVOLUTION**, 110/110 cum laude  
(GPA: 29.52/30)

**DISSERTATION:** Analysis of the applicability of miRNA clusters as phylogenetic markers, through the development of a method to identify the sequences that best predict a cladogram

**Supervisors:** [Prof. A. Cellerino \(SNS\)](#) and Dr. R. Marangoni (Unipi)

2012 – 2017



Scuola Normale Superiore – Pisa, Italy  
**ALLIEVO ORDINARIO (STUDENT)** of the Faculty of  
Mathematical and Natural Sciences – Biology

Scuola Normale Superiore (SNS) is a very prestigious and selective (only about 5 Biology students admitted every year) Italian University Institution based on the college model, planning a parallel and complementary career with respect to the University of Pisa. Every year, an SNS student has to respect academic duties such as timing, additional exams, advanced lectures, research work from very early years and an average exam grade of 27 out of 30 (no exam grade below 24/30). Students of SNS do not pay any fee – it is a 5 years honor scholarship - and the SNS provides its students with all of the basic services, together with a little stipend.

2012 – 2015



University of Pisa – Pisa, Italy  
**BS BIOLOGICAL SCIENCES, 110/110 cum laude** (GPA: 29.07/30)

**DISSERTATION:** Convergent evolution in three-spined stickleback populations through regulatory modifications in development-related genes

**Supervisors:** [Prof. A. Cellerino \(SNS\)](#) and Prof. M. Andreazzoli (Unipi)

## WORKSHOPS AND CONFERENCES

2024



University of Reading, Reading (UK)

**11<sup>TH</sup> SYSTEMATICS ASSOCIATION BIENNIAL CONFERENCE**

Contributed talk: “TreeView: Flexible, modular software to visualise and manipulate phylogenetic trees”

2023



Geological Society of London (UK)

**LIFE AND PLANET 2023**

Contributed talk: “The (bacterio-)chlorophyll biosynthetic pathway provides Bayesian insights into the evolution of photosynthesis”

2022



Ventura, CA (USA)

**GEOBIOLOGY GRC & GRC 2022**

Poster presentation: “A Bayesian approach using genomic data and biosynthetic pathways to study salt tolerance in Cyanobacteria”

2022



Liverpool (UK)

**INTERNATIONAL SYMPOSIUM ON PHOTOTROPHIC PROKARYOTES**

Poster presentation: “A Bayesian approach using genomic data and biosynthetic pathways to study salt tolerance in Cyanobacteria”

2021



Heinrich Heine Universität Duesseldorf – Online  
**MATHEMATICAL, INFERENTIAL AND COMPUTATIONAL  
PHYLOGENOMICS (MIC-PHY) MEETING 2021**

Contributed talk: “sMap: Evolution of independent, dependent and conditioned discrete characters in a Bayesian framework”

2020



Heinrich Heine Universität Duesseldorf (DE) – Online  
**CYANO2020**

Early Career Researcher Summer School on Cyanobacteria

2018

University of Bristol – Bristol (UK)  
**USING IMMERSIVE GAMES TO EXPLORE DATA**

2018

University of Bristol – Bristol (UK)  
**ANALYSING MACROEVOLUTIONARY PROCESSES USING  
REVBAYES**

2016

Marine Biological Laboratory – Woods Hole, MA (USA)  
**WORKSHOP ON MOLECULAR EVOLUTION**

[MBL's Workshop on Molecular Evolution](#) is the most prestigious workshop serving the field of evolutionary studies. Founded in 1988, it is the longest-running workshop of its kind and it has earned worldwide recognition for its rich and intensive learning experience. Students work closely with internationally-recognized scientists, receiving high-level instruction in the principles of molecular evolution and evolutionary genomics, advanced training in statistical methods best suited to modern datasets, and hands-on experience with the latest software tools (often from the authors of the programs they are using).

## AWARDS

2019

Bristol – UK  
**NATURAL SYSTEMS AND PROCESSES POSTER SESSION (NSPPS)**  
3<sup>rd</sup> prize (poster title: “Cyanobacteria and the geological record of oxygen: insights from the evolution of salt tolerance”)

2012



Singapore – Republic of Singapore  
**INTERNATIONAL BIOLOGY OLYMPIAD**  
Silver medal

2009



Taipei – Taiwan  
**INTERNATIONAL EARTH SCIENCE OLYMPIAD**  
Bronze medal  
International Team Field Investigation best presentation award

## ADDITIONAL COLLABORATIONS

2017 – TO DATE



**INTERNATIONAL BIOLOGY OLYMPIAD**

Jury Member for Italy

2016 – TO DATE



**ANISN**

Alumnus, member and webmaster of the Italian National Association of Natural Sciences Teachers (ANISN)

The [National Association of Natural Sciences Teacher](#) (Associazione Nazionale Insegnanti di Scienze Naturali, ANISN) is an association of over 1000 between Natural Sciences teachers and young members (former winners of the national and international Olympiads for Natural Sciences), which is accredited by the Italian Ministry of Education as a teacher formation body and is in charge of organizing the National Olympiads for Natural Sciences (Biology and Earth Science), which select 4 amongst all of the participating Italian students to compete in the International Biology and Earth Science Olympiads.

2013 – TO DATE



Active collaboration with the National Association of Natural Sciences Teachers for the creation of questions for the National Olympiads for Natural Sciences

2011



Modena – Italy

**INTERNATIONAL EARTH SCIENCE OLYMPIAD**

Staff member

## OUTREACH ACTIVITIES

2024



University of Bristol, Bristol – UK

**BEYOND PLANTS: PHOTOSYNTHESIS IN THE BACTERIAL DOMAIN**

Teacher Continuing Professional Development (CPD)

2019



Royal Society, London – UK

**THE SWEET WORLD OF MICROBES**

Summer Science Exhibition Lates 2019

2018



Royal Society, London – UK

**THE SWEET WORLD OF MICROBES**

Summer Science Exhibition Lates 2018

2018

Bishop Road Primary School, Bristol – UK

**OUTREACH EVENT**

## INTERESTS AND ADDITIONAL SKILLS

In 2018/2019 I organised group meetings and seminars for the BRIDGE research group in Bristol and attended multiple seminar series at the University of Bristol. In 2019/2020 I was IT representative for the Physical Geography PGR students at the University of Bristol.

## IT/TECHNOLOGY

I have experienced knowledge of the **C#** programming language, of the **ECMAScript/Javascript** scripting language and of **HTML** and **CSS**, and basic knowledge of the **Java** and **R** programming languages. I have occasionally successfully used other programming/scripting languages for specific tasks (**PHP**, **Python**, **R**, **C/C++** and **Bash**). I have extensive knowledge of Microsoft Office programs and I can write LaTeX documents. I have achieved the European Computer Driving License (ECDL). I have built small projects using the Raspberry Pi SBC and the Arduino platform.

## LANGUAGES

I am fluent in Italian (mother tongue) and English (written and oral); I have basic German conversation and writing skills.

14/01/2017



Pisa – Italy (Rome IELTS Administrative Center)

**IELTS CERTIFICATE** *Test report form number 16IT004501BIAG264A*

Average score 8.5 (Reading 9.0, Listening 9.0, Speaking 7.5, Writing 7.5)