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Born: May 21, 1988—Grenoble, France
Nationality: French

Educational background

- 2013-2016 PH.D. *Biodiversity, Ecology and Environment* – University of Grenoble-Alpes
- 2010-2011 M.S. *Ecology, Evolution and Biometry* – University of Lyon
- 2006-2009 B.S. *Biology and Population Ecology* – University of Lyon

Professional experience

- 2016- Postdoctoral researcher (Swedish University of Agricultural Sciences, Sweden).
Diatom ecological niches and community structure.
- 2013-2016 PH.D. degree (University of Grenoble-Alpes, France).
Assessing the links between phylogeny and ecological traits: new perspective for rivers bioassessment.
- 2012 Ecological engineer (Charpentier Consultants, Montluel, France).
Digital cartography of wetlands, methodological development.
- 2011 Ecological engineer (University of Lyon, France).
Analyses of ecological data as part of the Rhône river restoration project.
- 2011 Internship (University of Lyon, France).
Meta-analysis of nutrient limitation in rivers and streams.
- 2008 Internship (Charpentier Consultants, Trévoux, France).
Impact study as part of the Saône river restoration.

Scientific activity

JOURNAL ARTICLES

- 2018 Keck F., Vasselon V., Rimet F., Bouchez A. & Kahlert M. Boosting DNA metabarcoding for biomonitoring with phylogenetic estimation of OTUs' ecological profiles. *Molecular Ecology Resources*.
- 2018 Keck F., Franc A. & Kahlert M. (2018) Disentangling the processes driving the biogeography of freshwater diatoms: a multiscale approach. *Journal of Biogeography*.
- 2018 Rimet F., Abarca N., Bouchez A., Kusber W.-H., Jahn R., Kahlert M. *et al.* (2018) The potential of High-Throughput Sequencing (HTS) of natural samples as a source of primary taxonomic information for reference libraries of diatom barcodes. *Fottea*.
- 2017 Keck F., Vasselon V., Tapolczai K., Rimet F. & Bouchez A. (2017) Freshwater biomonitoring in the Information Age. *Frontiers in Ecology and the Environment* **15**, 266–274.
- 2017 Esteves S.M., Keck F., Almeida S.F.P., Figueira E., Bouchez A. & Rimet F. (2017) Can we predict diatoms herbicide sensitivities with phylogeny? Influence of intraspecific and interspecific variability. *Ecotoxicology* **26**, 1065–1077.
- 2017 Chonova T., Labanowski J., Cournoyer B., Chardon C., Keck F., Laurent É. *et al.* (2017) River biofilm community changes related to pharmaceutical loads emitted by a wastewater treatment plant. *Environmental Science and Pollution Research International*.
- 2016 Keck F., Bouchez A., Franc A. & Rimet F. (2016) Linking phylogenetic similarity and pollution sensitivity to develop ecological assessment methods: a test with river diatoms. *Journal of Applied Ecology* **53**, 856–864.
- 2016 Keck F., Rimet F., Franc A. & Bouchez A. (2016) Phylogenetic signal in diatom ecology: Perspectives for aquatic ecosystems biomonitoring. *Ecological Applications* **26**, 861–872.
- 2016 Keck F., Rimet F., Bouchez A. & Franc A. (2016) phylosignal: an R package to measure, test, and explore the phylogenetic signal. *Ecology and Evolution* **6**, 2774–2780.
- 2016 Rimet F., Chaumeil P., Keck F., Kermarrec L., Vasselon V., Kahlert M. *et al.* (2016) R-Syst::diatom: an open-access and curated barcode database for diatoms and freshwater monitoring. *Database* **2016**, baw016.
- 2016 Chonova T., Keck F., Labanowski J., Montuelle B., Rimet F. & Bouchez A. (2016) Separate treatment of hospital and urban wastewaters: A real scale comparison of effluents and their effect on microbial communities. *Science of The Total Environment* **542**, 965–975.
- 2014 Larras F., Keck F., Montuelle B., Rimet F. & Bouchez A. (2014) Linking Diatom Sensitivity to Herbicides to Phylogeny: A Step Forward for Biomonitoring? *Environmental Science & Technology* **48**, 1921–1930.
- 2012 Keck F. & Lepori F. (2012) Can we predict nutrient limitation in streams and rivers? *Freshwater Biology* **57**, 1410–1421.
- 2012 Lepori F. & Keck F. (2012) Effects of Atmospheric Nitrogen Deposition on Remote Freshwater Ecosystems. *AMBIO: A Journal of the Human Environment* **41**, 235–246.

SELECTED PRESENTATIONS

- 2018 *25th International Diatom Symposium (Berlin, Germany)*. Patterns and drivers of phylogenetic diversity in freshwater diatom communities of Sweden.
- 2015 *9th Symposium for European Freshwater Sciences (Geneva, Switzerland)*. Linking phylogenetic similarity and pollution sensitivity to develop ecological assessment methods: a test with diatoms.
- 2015 *9th Use of Algae for Monitoring Rivers and comparable habitats (Trentino, Italy)*. Developing phylogenetically based biomonitoring methods: a test with diatoms.
- 2014 *Joint Aquatic Sciences Meeting (Portland, Oregon)*. Linking Diatoms Ecological Preferences To Phylogeny: New Perspectives for Aquatic Ecosystems Bioassessment.
- 2013 *7th CE Diatoms meeting (Thonon-les-Bains, France)*. Linking diatoms pollution-sensitivity to phylogeny: New perspectives for aquatic ecosystems bioassessment. Award of the best student presentation.
- 2011 *7th Symposium for European Freshwater Sciences (Gerona, Spain)*. Can we predict nitrogen limitation in streams and rivers? A meta-analysis.

SOFTWARE DEVELOPMENT

Lead developer of two R packages available on CRAN:

- *rleafmap*: interactive maps with R and leaflet.
- *phylosignal*: assessing and exploring the phylogenetic signal with R.

Other open source contributions: <https://github.com/fkeck>

Invited at the R hackathon Hackout 2: Graphical Resources for Infectious Disease Epidemiology in R (Imperial College, London, 2015).

PRIZES & AWARDS

- 2013 Award of the best student presentation. 7th Central European Diatoms Meeting.
- 2017 Ph.D. thesis award. University of Grenoble-Alpes (1500 €).

Technical Skills

Advanced statistics and programming with R: Hypothesis testing, multivariate statistics, inferential modelling, machine learning...

Data visualization: Static and interactive graphics, interactive dashboards (Shiny).

GIS and spatial analysis: ArcGIS, QGIS and R (sp, gstat, spatstat...)

Database management: MS Access, MySQL (basics)

Phylogenetics: PhyML, RAxML, MrBayes and R (ape, adephylo, picante...)

Text processing: MS Office/OpenOffice, markdown, \LaTeX , HTML

Image editing and processing: Photoshop/Gimp, Illustrator/Inkscape, ImageJ

References

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Dr Fabio Lepori

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