

Universitatea Babes-Bolyai din Cluj-Napoca

Facultatea de Stiinta si Ingineria Mediului

Scoala doctorala Stiinta Mediului Doctoral School

Conducator de doctorat/Supervisor: Conf. dr. ing. habil. Nicolae AJTAI

Concurs pentru admiterea la doctorat / Admission exam to doctoral studies

Iulie, Septembrie / July, September 2025

Desfășurarea concursului / Examination procedure:

1. Lucrare scrisă (max. 5 pg.) pe baza tematicii și a bibliografiei propuse pentru concurs. Subiectul lucrării va fi comunicat candidaților.

Written paper (max. 5 pg.) based on the proposed topic and references. The topic of the paper will be communicated to the candidates.

2. Interviu în cadrul căruia se analizează preocupările științifice și realizările anterioare ale candidatului, după cum rezultă din documentele depuse la înscrierea la concursul de admitere, aptitudinile personale de cercetare, tema propusă pentru teza de doctorat.

Interview discussing the previous scientific interest and achievements of the applicant, as reflected by the submitted documents, personal skills of the applicant, and the topics proposed for the doctoral studies.

Notă: o parte a interviului se va desfășura în limba engleză.

Note: For the Romanian speaking applicants, part of the interview will be held in English. For the foreign applicants, the interview will be in English.

Tematica / Topic:

Metode de teledetecție și in-situ de monitorizare și caracterizare a proprietăților aerosolilor atmosferici

Remote sensing and in-situ methods for the monitoring and characterization of atmospheric aerosols' properties.

Referințe / References:

1. Ken Carslaw, Aerosols and Climate, 2022, Elsevier, Print ISBN 9780128197660 (capitolele 9-12 / chapters: 9-12)

2. Remote Sensing of Aerosols, Clouds, and Precipitation, Capitolul 2 / Chapter 2 - Vertical Profiling of Aerosol Optical Properties From LIDAR Remote Sensing, Surface Visibility, and Columnar Extinction Measurements, Editor(s): Tanvir Islam, Yongxiang Hu, Alexander Kokhanovsky, Jun Wang, (2018), Elsevier, p22-43, ISBN 9780128104378, <https://doi.org/10.1016/B978-0-12-810437-8.09988-6>.

3. Dubovik, O., T. Lapyonok, P. Litvinov, et al.: GRASP: a versatile algorithm for characterizing the atmosphere, SPIE: Newsroom, Published Online: September 19, 2014. doi:10.1117/2.1201408.005558

4. Lopatin, A., O. Dubovik, A. Chaikovsky, et al.: Enhancement of aerosol characterization using synergy of lidar and sunphotometer coincident observations: the GARRLiC algorithm, *Atmos. Meas. Tech.*, 6, 2065–2088, 2013. doi:10.5194/amt-6-2065-2013
5. Herrera, M. E., O. Dubovik, B. Torres, T. Lapyonok, D. Fuertes, A. Lopatin, P. Litvinov, C. Chen, J. A. Benavent-Oltra, J. L. Bali, and P. R. Ristori, “Estimates of remote sensing retrieval errors by the GRASP algorithm: application to ground-based observations, concept and validation”, *Atmos. Meas. Tech.*, 15, 6075–6126, 2023. doi:10.5194/amt-15-6075-2022
6. INVESTIGATION OF ORGANIC AEROSOL SOURCES ACROSS EUROPE USING NOVEL SOURCE APPORTIONMENT TECHNIQUES, Dissertation ETH No. 28494, https://www.research-collection.ethz.ch/bitstream/handle/20.500.11850/575526/3/Chen_doctor_thesis_FINAL_GC.pdf
7. Crenn, V., Sciare, J., Croteau, P. L., Verlhac, S., Fröhlich, R., Belis, C. A., Aas, W., Äijälä, M., Alastuey, A., Artiñano, B., Baisnée, D., Bonnaire, N., Bressi, M., Canagaratna, M., Canonaco, F., Carbone, C., Cavalli, F., Coz, E., Cubison, M. J., Esser-Gietl, J. K., Green, D. C., Gros, V., Heikkinen, L., Herrmann, H., Lunder, C., Minguillón, M. C., Močnik, G., O'Dowd, C. D., Ovadnevaite, J., Petit, J.-E., Petralia, E., Poulain, L., Priestman, M., Riffault, V., Ripoll, A., Sarda-Estève, R., Slowik, J. G., Setyan, A., Wiedensohler, A., Baltensperger, U., Prévôt, A. S. H., Jayne, J. T., and Favez, O.: ACTRIS ACSM intercomparison – Part 1: Reproducibility of concentration and fragment results from 13 individual Quadrupole Aerosol Chemical Speciation Monitors (Q-ACSM) and consistency with co-located instruments, *Atmos. Meas. Tech.*, 8, 5063–5087, <https://doi.org/10.5194/amt-8-5063-2015>, 2015
8. Fröhlich, R., Crenn, V., Setyan, A., Belis, C. A., Canonaco, F., Favez, O., Riffault, V., Slowik, J. G., Aas, W., Äijälä, M., Alastuey, A., Artiñano, B., Bonnaire, N., Bozzetti, C., Bressi, M., Carbone, C., Coz, E., Croteau, P. L., Cubison, M. J., Esser-Gietl, J. K., Green, D. C., Gros, V., Heikkinen, L., Herrmann, H., Jayne, J. T., Lunder, C. R., Minguillón, M. C., Močnik, G., O'Dowd, C. D., Ovadnevaite, J., Petralia, E., Poulain, L., Priestman, M., Ripoll, A., Sarda-Estève, R., Wiedensohler, A., Baltensperger, U., Sciare, J., and Prévôt, A. S. H.: ACTRIS ACSM intercomparison – Part 2: Intercomparison of ME-2 organic source apportionment results from 15 individual, co-located aerosol mass spectrometers, *Atmos. Meas. Tech.*, 8, 2555–2576, <https://doi.org/10.5194/amt-8-2555-2015>, 2015.
9. Poulain, L., Spindler, G., Grüner, A., Tuch, T., Stieger, B., van Pinxteren, D., Petit, J.-E., Favez, O., Herrmann, H., and Wiedensohler, A.: Multi-year ACSM measurements at the central European research station Melpitz (Germany) – Part 1: Instrument robustness, quality assurance, and impact of upper size cutoff diameter, *Atmos. Meas. Tech.*, 13, 4973–4994, <https://doi.org/10.5194/amt-13-4973-2020>, 2020.
10. Quadrupole Aerosol Chemical Speciation Monitor (Q-ACSM) Standard Operating Procedure ,Version May 2021, <https://www.actris-ecac.eu/pmc-non-refractory-organics-and-inorganics.html>