

We are looking for experienced researchers interested in a 1-2 year position funded by a Marie Curie fellowship (IEF or IIF). The candidate is obliged to write a Marie Curie proposal in collaboration with the Department of Metrology and Modelling of Agrophysical Processes of the Institute of Agrophysics, Lublin, Poland to undertake research on one of the following topics:

- Evaluation of vegetable and fruit quality with the use of hyperspectral imaging
- Heat transport modeling within fruit in connection with active thermal imaging
- Dielectric properties of liquids of agricultural origin in alpha-dispersion frequency range
- Dielectric properties of soil and materials of agricultural origin in radio and microwave frequency ranges
- Quality indexes of liquids of agricultural origin on the base of their dielectric properties.
- Modeling of soil physical properties
- Modeling of heat, water and salt transport processes in soil profile
- Knowledge of satellite remote sensing, including “ground truth problem” is required.
- Basic knowledge of energy and mass transfer in soil and proven programming skills are required.
- Knowledge of ELBARA instrument and soil water behaviour is required.

The candidate is (preferably) physicist or engineer and will have PhD or is PhD student with at least 4 years of experience in one of the mentioned research areas. He/she is highly motivated, open-minded and independent. To complete a successful application, the candidate has proven his/her scientific skills by list of reviewed publication in professional journals.

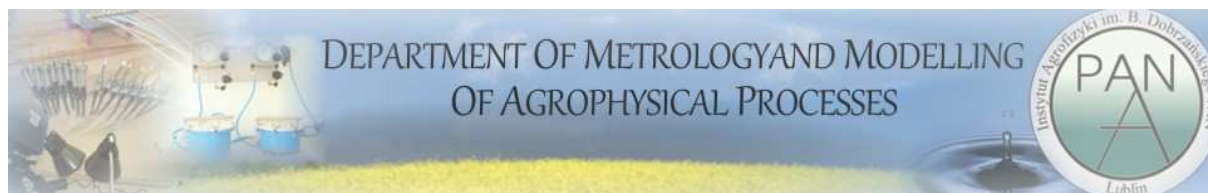
The deadline for applications to IA PAS is May 31st, 2012. Further information on Marie Curie actions is available at: <http://cordis.europa.eu/fp7/mariecurieactions/>

If this opportunity appeals to you, please send your full CV and covering letter to:

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keywords: Marie Curie fellowship

About Department of Metrology and Modeling of Agrophysical Processes

The activities of the Department of Metrology and Modeling of Agrophysical Processes are focused on the study and modeling of mass and energy transfer in the soil-plant-atmosphere system, the development of methods for the description of physical properties of colloidal-capillary-porous bodies of mineral origin, the development of new measurement methods and apparatuses, systems of monitoring, and methods for the analysis and interpretation of results including the time-space variability of the parameters studied. The numerical and cartographic databases on parameters of the environment of plant growth and development are created for the use in comprehensive simulation and forecast models of the optimization and utilization of water resources and obtaining crop yields under varied soil-climatic conditions. The department consists with five laboratories which are equipped with modern scientific equipment (mostly purchased recently). The Laboratory of Dielectric Spectroscopy studies moisture and salinity of materials using TDR (time domain reflectometry) and FDR (frequency domain reflectometry) methods and develops prototype sensors for measuring physical and chemical properties of soils and plants (ion-selective, redox potential, moisture or oxidation sensors). The Laboratory of Natural Environment Monitoring performs measurements of hydrological and thermal properties of soils: water retention curves, water and thermal conductivity coefficients and thermal capacity to describe and model of mass and energy transport



processes in the soil-plant-atmosphere system. The Laboratory of Thermography uses NDT methods such as thermal imaging and imaging spectroscopy (in UV, visible light and near IR ranges) to determine absorption, dispersion and emission properties of examined objects (soil, plant materials, food products). The Laboratory of Evaluation, Treatment and Utilization of Post Fermentation Sludge has equipment for determining the water and thermal characteristics of porous media, particularly soil. These laboratories use recently purchased equipment including: TDR soil moisture meters (developed and manufactured in IA PAN), UV, VNIR and SWIR hyperspectral imaging system, thermographic cameras, water retention hysteresis measuring sets, particle size measuring instruments, X-ray microtomograph, sets for heat properties determination, climatic chamber. All that equipment as well as experienced research staff of the Department can serve the realization of the problems connected with risk assessment in European agriculture and food security.