

Dahlia Greidinger Symposium 2007

Advanced Technologies for Monitoring Nutrient and Water Availability to Plants

DATE: Monday and Tuesday 12th – 13th March, 2007

VENUE: Grand Water Research Institute, Technion - Israel Institute of Technology, Haifa.

TECHNICAL TOUR: Wednesday and Thursday 14th – 15th March, 2 day tour to the Dead Sea Works, Negev Phosphates mines, manufacturing plants and surroundings.

The availability of water and nutrients is a major factor regulating world agricultural productivity. Until recently, large scale estimation of such availability has been problematic. However, the development of global positioning system technology (GPS) and computerized approaches to chemical, spectral and biological sensing of nutrients and water has lead to numerous breakthroughs in this cutting edge area of research and development. The forthcoming 9th Dahlia Greidinger Symposium will provide an opportunity for leading scientists to present invited lectures and contributed posters describing on-going research and recent progress in this field.

The symposium will be followed by a technical tour to the Dead Sea and Negev area where Israel's potash and phosphate resources are mined and processed. The symposium is expected to lead to new initiatives and international collaborations.

PROGRAM

Monday 12 March 2007

Session 1: Monitoring technologies

- 1-1 **Israel Shechter**: "Monitoring methods: an overview", Faculty of Chemistry, Technion, Israel.
- 1-2 **Ewald Schnug**: "New issues in remote sensing in agriculture", Institute of Plant Nutrition and Soil Science, FAL, Braunschweig, Germany.
- 1-3 **Constantinos Georgiou**: "Chemical approach to remote sensing", Analytical chemistry group, Agricultural University of Athens, Greece.
- 1-4 **Harold Van Es**: "Farmer-oriented assessment of soil quality using field, laboratory and modeling approaches", Dept. of Crop and Soil Sciences, Cornell University, USA.
- 1-5 **D. Marshall Porterfield**: "Advancing technology for measuring physiological processes in plant systems", Dept. of Agricultural and Biological Engineering, Purdue University, IN, USA

Lunch

Session 2: Spectral methods

- 2-1 **Yafit Cohen**: "Hyperspectral imaging for monitoring nitrogen content in potato", Agricultural Research Organization, Volcani Research Center, Israel.
- 2-2 **David Bonfil**: "Basing a decision support system for improving wheat quality on multi or hyperspectral images", Agricultural Research Organization, Gilat Research Center, Israel.
- 2-3 **Maxim Shoshani**: "Monitoring water stress in plants using hyperspectral camera", Faculty of Civil and Environmental Engineering, Technion, Israel.
- 2-4 **Raphael Linker**: "Determination of nitrate using mid-IR spectroscopy", Faculty of Civil and Environmental Engineering, Technion, Israel.

Conference Dinner

Tuesday 13 March 2007

Session 3: Water sensing methods

- 3-1 Ning Wang:** "Potentials of wireless sensors network in precision agriculture and environmental monitoring ", Dept. of Bioresource Engineering, McGill University, Quebec, Canada.
- 3-2 Michael Delwiche:** "Wireless Network for Irrigation Valve Control", Dept. of Biological and Agricultural Engineering, University of California, Davis USA.
- 3-3 Benjamin Zur:** "An intelligent irrigation control system with feedback", Faculty of Civil and Environmental Engineering Technion, Israel.
- 3-4 Moshe Meron:** "Crop stress mapping for precision irrigation by thermal sensing and artificial reference surfaces", Migal –Galilee Technology Center, Israel.
- 3-5 Victor Alchanatis:** "Thermal imaging for monitoring water status in grapevine and cotton", Agricultural Research Organization, Volcani Research Center, Israel.

Lunch

Session 4: Soil nutrient monitoring

- 4-1 Jeff Schoenau:** "Use of ion exchange membranes as root simulators to assess nutrient ion supply rates in soils", Dept. of Soil Science, University of Saskatchewan, Canada.
- 4-2 Tony Miller:** "Measuring changes in soil nutrient availability with ion-selective electrodes", Crop Performance and Improve Division, Rothamsted Research, U.K.
- 4-3 Stuart Birrell:** "Use of ISFET (ion-selective field effect transistors) for real-time sensing of soil nutrients", Dept. of Agricultural and Biosystems Engineering, Iowa State University, USA.
- 4-4 Avi Shaviv:** "Advanced ¹⁵N-based techniques to trace nitrogen transformations in soils and environmental systems", Faculty of Civil and Environmental Engineering, Technion, Israel.
- 4-5 Dror Minz:** "Bacterial population change as a potential sensor of changes in soil conditions", Agricultural Research Organization, Volcani Research Center, Israel.

POSTER SESSION

The symposium program includes poster display periods. Authors who wish to present a poster should submit a one page abstract to rsconf@yahoo.com before 1.1.07.

The abstract should be typed in Times New Roman, 12 pt. Font, 1.5 line spacing.

TECHNICAL TOUR

The technical tour is arranged for Wednesday and Thursday, 14th and 15th March 2007 to visit part of the southern area of Israel: Negev and Judean Desert and the two main manufacturing plants.

We will stay at Ein Gedi Kibbutz in its hotel surrounded by botanical garden.

[Dead Sea Works](#) is a unit of ICL Fertilizers. It is the world's fourth largest producer and supplier of potash products, as well as a broad range of chemical products, including magnesium chloride, anhydrous aluminum chloride, industrial salts, de-icers, bath salts, table salt and raw materials for the cosmetic industry.

Dead Sea facilities in Israel are a unique natural resource, situated at the lowest point on the planet. Here, solar energy helps to extract potash and other minerals from the biggest solar evaporation pond array in the world.

[Rotem Amfert Negev](#) is manufacturing and marketing a comprehensive range of products based on phosphate rock as raw material and leading to downstream derivatives including phosphoric acids, fertilizers, specialty chemicals and phosphate salts.

SYMPOSIUM WEBSITE

Updated information on the symposium will be posted on the website of Technion's Grand Water Research Institute. <http://gwri-ic.technion.ac.il>

SYMPOSIUM COMMITTEE

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