

SP Scientific is pleased to announce that Dr. Henning Gieseler and his Freeze Drying Focus group from the University of Erlangen will be presenting this 3 one day LyoLearn Live seminar program. Dr. Gieseler is world renowned for his research in lyophilization. His program is considered to be one of the top academic programs worldwide in this field.

Freeze Drying of Pharmaceuticals: Principles & Practice

Dates & Locations	Monday - April 12, 2010 - Princeton, NJ	Princeton Doubletree
	Wednesday - April 14, 2010 - Boston, MA	Boston Doubletree
	Friday - April 16, 2010 - San Francisco, CA	Burlingame Doubletree
Agenda		
9:00 – 9:15	Welcome Address and Opening Remarks	Mark Shon SP Industries
9:15 – 10:00	Introduction to Freeze Drying: Putting Principles into Practice. The concept of freeze drying; fundamental physics behind lyophilization; overview; areas of application; detailed discussion of the freezing, primary drying and secondary drying steps; primary packing materials for pharmaceutical freeze drying; product temperature and pressure measurement etc.	Jakob Beirowski LPT, University of Erlangen
10:00 – 10:30	Formulation I: Physical Properties of Materials Differences between crystalline and amorphous systems and associated critical temperatures; formulation principles of proteins and small molecules; interrelation between formulation and process; possible formulation issues and how to solve them etc	Henning Gieseler LPT, University of Erlangen
Coffee Break		
10:45 – 11:15	Formulation II: The Challenge of Formulating Colloidal Systems Introduction to rational formulation design for nano- and micro- particles, micro emulsions and liposome; potential challenges in the design of a freeze drying cycle for such formulations; recent case studies and lessons learned, etc	Jakob Beirowski LPT, University of Erlangen
11:15 – 12:00	Freeze Dry Microscopy: Introduction and Relevance for Process Design and Optimization Equipment considerations; importance of methodology; experimental parameters which impact the collapse temperature result; FDM of protein formulations; a comparison; glass transitions vs collapse temperatures for cycle design and optimization; transfer-ability of FDM data to actual freeze drying cycles; etc	Susanne Rutzinger LPT, University of Erlangen
Lunch Break		
01:30 – 02:15	Process Design and Optimization I: A Survey of PAT Tools for Freeze Drying PAT and ObD; definition and regulatory perspective; what does “advanced” PAT for freeze drying mean? Overview of PAT for single vial monitoring and batch methods; traditional concepts versus latest technological innovations, etc	Stefan Schneid LPT, University of Erlangen
02:15 – 02:45	Process Design and Optimization II: MTM and SMART Freeze Dryer™ Technology Short introduction to MTM and the SMART Freeze Dryer™ Technology; merits and demerits associated with MTM; review of recent case studies and performed research etc	Henning Gieseler LPT, University of Erlangen
Coffee Break		
03:00 – 03:30	Heat and Mass Transfer in Freeze drying: Role of the Vial Molded vs tubing vials; definition of the vial heat transfer coefficient (Kv); proper methodology to evaluate Kv; importance of Kv for cycle design; new concepts fo vials for freeze drying	Susanne Rutzinger LPT, University of Erlangen
03:30- 04:00	Fundamental Concepts about Scale-Up Differences between laboratory and production dryer; heat and mass transfer issues; matching product temperature profiles between laboratory and production scale equipment; minimum controllable pressure; design of robustness studies; etc.	Stefan Schneid LPT, University of Erlangen
Closing Remarks		
<p>For more information please contact: Leslie Mather at Leslie.Mather@SPScientific.com 845-687-0071</p> <p>Fee: \$145. Student \$75. This fee is to cover the cost of conference rooms, lunch and snacks.</p> <p>Princeton Doubletree Location: 4355 US Route 1, Princeton, NJ 08540 Phone: 609-945-2512</p> <p>Boston Doubletree Location: 400 Soldiers Field Road, Boston, MA 02134 Phone: 617-562-4160</p> <p>Burlingame Doubletree Location: 835 Airport Blvd., Burlingame, CA 94010 Phone 650-344-5500</p>		

Thank you to the following additional sponsors:

