

6th International Conference on the Scientific and Clinical Applications of Magnetic Carriers - Krems, Austria

Tuesday, May 16, 2006

- 15:00 - 19:00 (3 - 7 PM) Registration desk opens at IMC Krems
- 19:00 - 21:00 (7 - 9 PM) Informal get together and **welcome cocktail** (apero) in the Heurigen Muellner (included in registration; see map for locations)

Wednesday, May 17, 2006

7:30	Registration desk opens / Posters can be hung		
	Opening Session		page
9:00	<i>Schuett, Wolfgang</i>	Welcome and opening of the conference	
9:05	<i>Boyer, Heinz</i>	Welcome by the CEO of the IMC Krems	
9:10	<i>Hafeli, Urs</i>	Short review of the last 2 years of magnetic carriers	
9:30	<i>Schüler, Dirk</i>	INVITED - Making magnets by bacteria: Biomineralization, functionalization, and application of biogenic magnetic nanoparticles	3
10:10	Coffee break / poster session / exhibitors		
10:40	Session 1: Highlights from different areas		
	Chairs: Robert Shull (U.S.A.) and Dirk Schüler (Germany)		
10:45	<i>Plank, Christian</i>	Magnetic microbubbles: New carriers for localized gene / drug delivery	4
11:00	<i>Pradhan, Pallab</i>	Preparation and characterizations of manganese ferrite based magnetic liposomes for hyperthermia treatment of cancer	5
11:15	<i>Xu, Yun Hao</i>	Direct synthesis of multifunctional magnetic nanoparticles from gas phase	6
11:30	<i>Ibarra, Ricardo</i>	Carbon coated magnetic nanoparticles for targeted drug delivery using magnetic implants	7
11:45	<i>Chu, Winnie</i>	Magnetic spider silk MEMS	8
12:00	<i>Gollwitzer, Christian</i>	Thermoreversible ferrogels -- a promising new class of materials	9
12:15	Lunch in the Cafeteria		
13:30	<i>Shull, Robert</i>	Basic physics of magnetic carriers and other small magnetic things	T
14:00	Session 2: Nanotechnology		
	Chairs: Ricardo Ibarra (Spain) and Paul Todd (U.S.A.)		
14:05	<i>Naletova, Vera</i>	A deformable magnetizable worm in a magnetic field - a prototype of a mobile crawling robot	10
14:17	<i>van Ommerring, Kim</i>	Confined Brownian motion of individual magnetic nanoparticles on chip – Characterization of magnetic susceptibility	11
14:29	<i>Liu, Chengxun</i>	On-chip magnetic isolation and detection of cells	12
14:41	<i>Mefford, Thompson</i>	Magnetophoretic mobility of silicone magnetic fluids through hydrophilic media	13
14:53	<i>Garcia, Antonio</i>	Magnetic movement of biological fluids	14
15:05	<i>Heer, Rudolf</i>	Acceleration of incubation processes in DNA bio-chips	15
15:17	Coffee break / poster session / exhibitors		
16:00	Session 3: Various areas, gene delivery		
	Chairs: Christian Bergemann (Germany) and Dhirendra Bahadur (India)		

16:05	<i>Li, Wenzhong</i>	Gene delivery to the heart by magnetic nanobeads	16
16:17	<i>Horák, Daniel</i>	Carboxyl-functionalized magnetic microparticle carrier for isolation and identification of DNA from dairy products	17
16:29	<i>Mykhaylyk, Olga</i>	Magnetic nanoparticles formulations for DNA and siRNA delivery	18
16:41	<i>Brem, Franziska</i>	Can a two-component nanoparticle system mimic the magnetic properties of human brain tissue?	19
16:53	<i>Anker, Jeffrey</i>	Magnetically guiding and orienting integrated chemical sensors	20
17:05	<i>Aurich, Konstanze</i>	A novel homogeneous immunoassay for human carcinoembryonic antigen based on magneto-optical relaxation measurements	21
17:17	<i>Rovers, Stefan</i>	On-demand drug delivery from polymer matrices induced by a magnetic field	22
17:29	End of session / free evening - use it to meet old friends, discuss new collaborations, and enjoy Krems on your own!		

Thursday, May 18, 2006

Session 4a: Hyperthermia

Chairs: Ed Flynn (U.S.A.) and Oleg Kuznetsov (Russia)

9:00	<i>Ivkov, Robert</i>	Development of tumor targeting magnetic nanoparticles for cancer therapy	25
9:12	<i>Gruettner, Cordula</i>	Characterization of magnetic nanoparticles with improved specific power absorption rates for alternative magnetic field cancer therapy	26
9:24	<i>Spiers, Kathryn</i>	Production of magnetic microspheres by ultrasonic atomisation	27
9:36	<i>Dutz, Silvio</i>	Magnetic particle hyperthermia – Biophysical limitations of a visionary tumor therapy	28
9:48	<i>Glöckl, Gunnar</i>	Magnetic nanoparticles for hyperthermia: Determination and characterization of heating efficiency	29

10:00 Coffee break / poster session / exhibitors

Session 4b: Hyperthermia

Chairs: Matthias Bellemann (Germany) and Ivo Safarik (Czech Republic)

10:35	<i>Kuznetsov, Oleg</i>	ESR study of thermal demagnetization processes in ferromagnetics with Curie temperatures (T_c) 40 to 60°C	30
10:47	<i>Vigor, Kim</i>	Antibody-nanoparticle complexation for hyperthermic treatment of tumours	31
10:59	<i>Vasseur, Sebastien</i>	Synthesis and characterization of $\text{La}_{0.75}\text{Sr}_{0.25}\text{MnO}_3$ magnetic nanoparticles for self-controlled heating	32
11:11	<i>Creanga, Dorina</i>	Microorganism response to magnetic nanoparticles and microwave radiation	33
11:23	<i>Kuznetsov, Anatoly</i>	Cu-Ni alloy magnetic nanoparticles for hyperthermia at prescribed temperature	34
11:35	<i>Flynn, Ed</i>	INVITED - Detection and treatment possibilities of disease with magnetic nanoparticles	35

12:15 Lunch in the Cafeteria

13:30	<i>Shull, Robert</i>	Basic physics of magnetic carriers and other small magnetic things	T
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Session 5a: Magnetic Separation

Chairs: Jim Watson (U.K.) and Steve Williams (U.S.A.)

14:05	<i>Lehmann, Ulrike</i>	DNA capture and elution in a magnetic droplet manipulation system	36
14:17	<i>Smistrup, Kristian</i>	Towards a programmable multi-assay in a microfluidic system using magnetic beads	37
14:29	<i>Sen, Tapas</i>	Surface functionalisation of magnetic nanoparticles by reverse emulsion: A novel approach to silanisation for magnetic bio-separations	38

14:41	<i>Ettenauer, Marion</i>	Development and application of ferromagnetic fluorescent microparticles as markers for particle release in extracorporeal blood purification	39
14:53	<i>Carpino, Francesca</i>	Quadrupole magnetic field-flow fractionation: a novel technique for the characterization of magnetic nanoparticles	40
15:05	<i>Prina-Mello, Adriele</i>	Multilineage cell alignment and separation by magnetic field after internalization of nickel nanowires	41
15:17	Coffee break / poster session / exhibitors		
16:00	Session 5b: Magnetic Separation		
	Chairs: Maciej Zborowski (U.S.A.) and Jeff Chalmers (U.S.A.)		
16:05	<i>Hirota, Noriyuki</i>	Separation of biological materials by magneto-Archimedes levitation and application for magnetic susceptibility measurements	42
16:17	<i>Pamme, Nicole</i>	The continuous flow separation of magnetic particles and cells in microfluidic free-flow magnetophoresis devices	43
16:29	<i>Kennedy, David</i>	Engineering quadrupole magnetic flow sorting for user applications	44
16:41	<i>Chalmers, Jeff</i>	Detection of disseminated tumor cells in bone marrow of breast cancer patients	45
16:53	<i>Schwalbe, Manuela</i>	Magnetic tumor cell depletion from peripheral blood does not affect lymphocytes	46
17:05	<i>Safarik, Ivo</i>	Magnetically modified microbial cells as efficient adsorbents for xenobiotics removal	47
17:17	<i>Watson, Jim</i>	Diffusion and differentiation of magnetic bone marrow stem cells in slices of rat brain hippocampus with an induced lesion	48
17:29	End of session / Boat trip on the Donau including dinner		

Friday, May 19, 2006

	Session 6: Magnetic Drug Delivery		
	Chairs: Wolfgang Schuett (Austria) and Axel Rosengart (U.S.A.)		
9:00	<i>Klostergaard, Jim</i>	Magnetic vectoring of magnetically-responsive nanoparticles within the murine peritoneum	51
9:12	<i>Ma, Yunn-Hwa</i>	Intra-arterial application of magnetic nanoparticle for targeted thrombolytic therapy: a rat embolic model	52
9:24	<i>Kirpotin, Dmitri</i>	Magnetic microparticles with improved drug load using polyelectrolyte-coated nanocrystalline iron oxides	53
9:36	<i>Avilés, Misael</i>	In vitro and theoretical advances in the study of stents for implant assisted magnetic drug targeting	54
9:48	<i>Bellemann, Matthias</i>	A portable system for magnetic marker monitoring using rotating magnetic macrospheres	55
10:00	<i>Rosengart, Axel</i>	Improvement of in vitro thrombolysis using magnetic carriers	56
10:12	Coffee break / poster session / exhibitors		
10:42	Session 7: Magnetic contrast agents		
	Chairs: Jeff Bulte (U.S.A.) and Urs Hafeli (Canada)		
10:47	<i>Brähler, Myriam</i>	Magnetite loaded carrier erythrocytes as magnetic resonance imaging contrast agent	57
10:59	<i>Zenke, Martin</i>	Magnetic nanoparticles and smart contrast agents for tracking of stem cells and dendritic cells	58
11:11	<i>Hilger, Ingrid</i>	MR-Imaging of Her-2/ neu expressing tumors with high-affinity labeled magnetic nanoparticles	59

11:23	<i>Thanh, Nguyen</i>	The study of magnetic nanoparticles as a contrast enhancer for MRI to track cancer metastasis	60
11:35	<i>Bulte, Jeff</i>	INVITED - MR tracking of magnetically labeled cells: First clinical applications	61
12:15	Lunch in the Cafeteria		
13:30	<i>Shull, Robert</i>	Basic physics of magnetic carriers and other small magnetic things	T
14:00	<i>Weizenecker, Jurgen</i>	INVITED - Magnetic particle imaging (MPI)	62
14:40	Session 8: Magnets for targeting purposes		
	Chairs: Ed Flynn (U.S.A.) and Tim St. Pierre (Australia)		
14:45	<i>Forbes, Zachary</i>	In vivo examination of high gradient magnetic field based drug delivery to magnetizable implants	63
14:57	<i>Ally, Javed</i>	Model studies of magnetic particle retention for the conducting airways	64
15:09	<i>Cha, Yung</i>	An effective and flexible method of manipulating magnetic carriers for medical applications	65
15:21	<i>Takeda, Shin-ichi</i>	Development of magnetically targeted drug delivery system using a superconducting magnet	66
15:33	Coffee break / poster session / exhibitors - PLEASE RATE POSTERS		
16:33	Session 9: Assays and analytical techniques		
	Chairs: Terry Thomas (Canada) and Kristin Kriz (Sweden)		
16:38	<i>Erné, Ben</i>	Low-frequency complex magnetic susceptibility of magnetic composite microspheres in colloidal dispersion	67
16:50	<i>Mitchels, John</i>	Quantification in histopathology - can magnetic particles help?	68
17:02	<i>De Palma, Randy</i>	How to design magnetic labels for optimal use in magnetic biosensing?	69
17:14	<i>Esker, Alan</i>	Interfacial properties of magnetic nanoparticles	70
17:26	<i>Lázaro, F.J.</i>	Whole tissue AC susceptibility after superparamagnetic iron oxide contrast agent administration in a rat model	71
17:38	<i>Eberbeck, Dietmar</i>	Magnetorelaxometry for quantification of biomolecular binding kinetics and nanoparticle aggregation in blood serum	72
17:50	<i>Meyer, Martin</i>	Quantifying magnetic beads – a new biosensor platform	73
18:02	<i>Nikitin, Petr</i>	New type of biosensors based on magnetic nanoparticle detection	74
18:14	<i>Heim, Erik</i>	Fluxgate magnetorelaxometry of superparamagnetic nanoparticles for hydrogel characterization	75
18:26	End of session / start of our Heurigen (Conference Kellergassenfest) in downtown (Altstadt) Stein		

Saturday, May 20, 2006

	Session 10a: Synthesis and Characterization of Magnetic Particles		
	Chairs: Cordula Gruettner (Germany) and Taeghwan Hyeon (South Korea)		
9:00	<i>Gonzales, Marcela</i>	Phase transfer of highly monodisperse iron oxide nanocrystals with Pluronic F127 for biological applications	79
9:12	<i>Majetich, Sara</i>	Multi-functional gold-iron oxide nanoparticles for biomedicine	80
9:24	<i>Liu, Xianqiao</i>	Preparation and characterization of pegylated biodegradable magnetic nanocomposite carriers for targeted drug delivery	81

9:36	<i>Matoussevitch, Nina</i>	Metallic Co, Fe, and Fe/Co nanoparticles for biomedical applications	82
9:48	<i>Tsang, Shik Chi</i>	New FePt/Fe ₃ O ₄ exchange spring coupled nanomagnet in silica sphere for bio-separation	83
10:00	<i>Riffle, Judy</i>	Superparamagnetic macromolecular-metal oxide complexes for biotechnological applications	84
10:12	POSTER PRIZE	Cordula Gruettner	
10:17	Coffee break / exhibitors		
10:47	Session 10b: Synthesis and Characterization of Magnetic Particles		
	Chairs: Judy Riffle (U.S.A.) and Kyoungja Woo (South Korea)		
10:52	<i>Tokoro, Hisato</i>	Fe fine particles encapsulated by titanium oxides with high magnetization for biomedical application	85
11:04	<i>Thüinemann, Andreas</i>	Maghemite nanoparticles protectively coated with poly(ethylene imine) and poly(ethylene oxide)-block-poly(glutamic acid)	86
11:16	<i>Pourroy, Genevieve</i>	Hydrothermal synthesis of magnetic magnetite nanoparticles (d = 39 nm ± 5 nm)	87
11:28	<i>Schmidt, Annette</i>	Novel stimuli-sensitive systems based on magnetic polymer brushes	88
11:40	<i>Taeghwan Hyeon</i>	INVITED - Large scale synthesis of monodisperse nanoparticles	89
12:20	Lunch in the Cafeteria		
13:35	Session 10c: Synthesis and Characterization of Magnetic Particles		
	Chairs: Hong Zhao (Canada) and Ben Yellen (U.S.A.)		
13:40	<i>Woo, Kyoungja</i>	Synthesis and dextran coating of water-dispersible iron oxide nanoparticles conjugated with mercaptopropionic acid	90
13:52	<i>Brown, Geoffrey</i>	Fimbriated magnetic cation exchangers for protein recovery by high-gradient magnetic fishing	91
14:04	<i>Xu, Hong</i>	Preparation of hydrophilic magnetic nanospheres with high solid content	92
14:16	<i>Chen, Gary</i>	Computational fluid dynamics (CFD) analysis of flow-focusing technique for preparation of monodispersed microspheres	93
14:28	<i>Giap, Duong</i>	Monodispersed nanocrystalline Co _{1-x} Zn _x Fe ₂ O ₄ particles by forced hydrolysis: Synthesis and characterization	94
14:40	<i>Claesson, Maria</i>	Monodisperse magnetic silica composite colloids for catalysis	95
14:52	<i>Avdeev, Mikhail</i>	On possibility to use short chain length monocarboxylic acids for stabilization of magnetic fluids	96
15:04	Closing Comments: Wolfgang Schuett and Urs Hafeli		
15:14	End of the scientific part of the meeting		
15:30	Buses depart from IMC for the Vienna tour (price for this trip NOT included in registration fee; see website for information)		
23:55	Buses return to Krems		