



# Workshop

## FTIR Spectroscopy in Microbiological and Medical Diagnostic

Robert Koch-Institute, Berlin

October 24-25, 2002

### Program

Thursday, October 24th

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|---------------|--|
| 8:30 - 10:00  | Registration   |
| 10:00 - 10:15 | Opening Remarks ( <b>Reinhard Kurth</b> , RKI)<br>Introduction ( <b>Dieter Naumann</b> , RKI)                          |
| 10:15 - 10:35 | <b>Guido Schiffer</b> (Wuppertal, Germany)<br>Application of FT-IR spectroscopy in antibacterial drug research         |
| 10:40 - 10:55 | <b>Carolin Kirschner</b> (Ås, Norway)<br>Rapid identification of pathogens by FT-IR microspectroscopy                  |
| 11:00 - 11:15 | <b>Alexander Piry</b> (Ettlingen, Germany)<br>Identification of micro-organisms on microplates by FTIR spectroscopy    |
| 11:20 - 11:50 | Coffee Break   |
| 11:55 - 12:15 | <b>Mareike Wenning</b> (Freising, Germany)<br>Identification of food-related microorganisms by FT-IR microspectroscopy |

- 12:20 - 12:35 **Kees Maquelin** (Rotterdam, The Netherlands)  
Raman spectroscopy in clinical microbiology
- 12:40 - 12:55 **Philip Heraud** (Clayton, Australia)  
Infrared spectroscopic analysis of single eukaryotic algal cells
- 13:00 - 14:00 Lunch
- 14:00 - 14:15 **Royston Goodacre** (Aberystwyth, UK)  
Rapid identification of biological warfare agents
- 14:20 - 14:35 **Christian P. Schultz** (Billerica, USA)  
Potential trends in emerging infrared and Raman technologies concerning biothreat detection, recognition and monitoring
- 14:40 - 14:55 **Sufian F. Al-Khaldi** (College Park, USA)  
Rapid methods using DNA microarray techniques in detecting food pathogens
- 15:00 - 15:15 **Julia Schleif** (Leipzig, Germany)  
Establishing an FT-IR data bank for the discrimination of probiotic *Bacillus cereus*-isolates from potentially toxic-strains
- 15:20 - 15:50 Coffee Break
- 15:50 - 16:10 **Klaus Gerwert** (Bochum, Germany)  
Proteins at work monitored by time-resolved FTIR-difference spectroscopy: Ras and prions
- 16:15 - 16:30 **Heinz Fabian** (Berlin, Germany)  
Protein folding and misfolding probed by time-resolved FTIR spectroscopy
- 16:35 - 16:50 **Janina Kneipp** (Rotterdam, The Netherlands)  
Changes of protein structure in scrapie-affected cells detected by synchrotron FTIR spectroscopy
- 16:55 - 17:15 **Max Diem** (New York, USA)  
Infrared spectroscopy of fully and partially condensed chromatin: Evidence for optically dense (dark) DNA
- 17.15 - 18.45 **Poster Session**

- P1 **Sarah Clarke** (Aberystwyth, UK)  
Investigating Raman spectroscopy for monitoring metabolite concentrations in microbial fermentations
- P2 **Anthoula Gaigneaux** (Brussels, Belgium)  
Infrared spectra of human glial cells could be related to prognostic features
- P3 **Patrick Garidel** (Halle, Germany)  
Fourier transform infrared microspectroscopy and imaging of the outerlayer of the skin
- P4 **Mara Grube** (Riga, Latvia)  
Spectral studies of *Lentinula edodes* mycelium
- P5 **H. M. Heise** (Dortmund, Germany)  
IR-microscopic analysis of skin biopsies for identification of implant materials as used in aesthetic surgery
- P6 **Peter Hinsmann** (Wien, Austria)  
Rapid mixing time resolved Fourier transform infrared spectroscopy to study bio-ligand interactions
- P7 **Carolin Kirschner** (Ås, Norway)  
FT-IR imaging as a method to monitor denaturation processes in meat
- P8 **Stefan Laettig** (Berlin, Germany)  
FT-IR spectroscopic studies on the hydration shell of methylated cyclodextrins
- P9 **E. Consuelo Lopez Diez** (Aberystwyth, UK)  
Evolutionary computational based methods and spectral data analysis.  
A case study: Adulteration of olive oil
- P10 **Ngoc Anh Ngo Thi** (Berlin, Germany)  
Identification and characterization of microorganisms by FT-IR microspectroscopy
- P11 **Astrid Oust** (Ås, Norway)  
Classification of meat lactobacilli by FT-IR spectroscopy
- P12 **Christophe Sandt** (Reims, France)  
FTIR spectroscopy as a tool for typing microorganisms
- P13 **Larysa Shapoval** (Dresden, Germany)  
Diagnosis of human brain metastasis by infrared microspectroscopy

- P14 **Fabian Sokolowski** (Berlin, Germany)  
Conformational conversion of the recombinant hamster prion protein SHaPrP<sup>90-232</sup> studied by Fourier transform infrared spectroscopy and dynamic light scattering
- P15 **Gerald Steiner** (Dresden, Germany)  
Analysis of FT-IR images by using chemometric imaging methods
- P16 **Wolfram Steller** (Dresden, Germany)  
Diagnosis of human brain tumors by FTIR imaging
- P17 **Osvaldo Yantorno** (La Plata, Argentina)  
FT-IR spectroscopy as a tool for studying phenotypic changes in *Moraxella bovis* growing as biofilm

18:45 - ?? Dinner (buffet, free of charge)

Friday, October 25th

- 9:00 - 9:15 **Florence Guibet** (Caen, France)  
Discrimination and classification of enterococci by Fourier transform infrared spectroscopy
- 9:20 - 9:35 **Alejandra Bosch** (La Plata, Argentina)  
Characterisation of *Lactobacillus* spp. isolated from kefir grains by FT-IR spectroscopy
- 9:40 - 9:55 **Kathrin Tintelnot** (Berlin, Germany)  
Typing of *Cryptococcus neoformans*: Fourier transform infrared spectroscopy (FT-IR) with isolates, characterized by geno- and serotyping
- 10:00 - 10:15 **Guido Fischer** (Aachen, Germany)  
Identification and intra-specific characterization of penicillia and aspergilli by Fourier-transform infrared spectroscopy (FT-IR)
- 10:20 - 10:50 Coffee Break

- 10:50 - 11:05      **Catherine Winder** (Aberystwyth, UK)  
Characterisation of mycobacteria using Fourier transform infrared spectroscopy
- 11:10 - 11:25      **Roger Jarvis** (Aberystwyth, UK)  
Characterisation of bacterial isolates from urinary tract infections using surface enhanced Raman spectroscopy and chemometrics
- 11:30 - 11:45      **Erik Goormaghtigh** (Brussels, Belgium)  
ATR-FTIR as a tool for the identification of *Leishmania* species
- 11:50 - 12:05      **H.M. Heise** (Dortmund, Germany)  
New opportunities for epidermal analysis using novel flexible silver halide fiber probes
- 12:10 - 13:10      Lunch
- 13:10 - 13:25      **Bayden Wood** (Clayton, Australia)  
Infrared microspectroscopy and unsupervised hierarchical cluster analysis applied to the analysis of cervical tissue: Search for the elusive infrared cancer markers
- 13:30 - 13:45      **Christoph Krafft** (Dresden, Germany))  
Raman and infrared spectroscopy for detection of changes in tissues and cells
- 13:50 - 14:05      **Ganesh Sockalingum** (Reims, France)  
Monitoring of cell differentiation and resistance in human cancer cell lines: An FTIR spectroscopic approach
- 14:10 - 14:25      **Jürgen Schmitt** (Heidelberg, Germany)  
Identification of Scrapie infection from blood serum by Fourier transform infrared spectroscopy
- 14:30 - 15:00      Final Discussion  
Concluding Remarks (NN)

## Aim

The workshop is intended to bring together scientists using and developing infrared and Raman spectroscopic techniques for the analysis of microbial, plant, animal or human cells, tissues, and body fluids. Following the lines of our two successful workshops in October 1996 and 1998 in Berlin, a major point of discussion will be FT-IR applications in medical and other fields of microbiology. The aim of the meeting is also to facilitate the exchange of ideas, practical problem solutions and experiences.

## Place and Time

**Robert Koch-Institute**  
**Nordufer 20**  
**13353 Berlin**  
**Germany**

**Registration:** October 24, 2002: 8:30 - 10:00

**Beginning:** October 24, 2002: 10:00

**End:** October 25, 2002: 15:00

## Organisation

D. Naumann, RKI Berlin

Tel.: +49-30-4547-2259, Fax: +49-30-4547-2606, e-mail: naumannD@rki.de

J. Schmitt, Synthon KG

Tel.: +49-6221-89-33-72, Fax: +49 6221-89-33-71, e-mail: schmitt@synthon-analytics.de

## Contact address

D. Naumann, Robert Koch-Institut, P 34

Nordufer 20, 13353 Berlin, Germany

Tel./ Fax: +49-30-4547-2259 / 2606

E-mail: naumannD@rki.de

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