

# The 4rd Cell Biological Science Workshop

Pre-Training Course 2 of fluorescence microscope

~intermediate to advanced level~

## **Hokkaido Summer Institute 2018**

July 23th (Mon) – 29th (Sun), 2018

### Organizer:

Faculty of Advanced Life Science, Hokkaido University

Quantitative Biology Center, Graduate School of Frontier Biosciences,  
Osaka University

Advanced ICT Research Institute, National Institute of Information and  
Communications Technology (NICT)

### Collaboration

Carl Zeiss Microscopy K.K

Leica Microsystems K.K.

Nikon Insteck. Co., LTD

Andor Technology Ltd

## Announcement

- Please keep **No-smoking** in Hokkaido University  
北海道大学の敷地内は指定場所を除き【禁煙】となっています。指定場所以外での喫煙はご遠慮ください。
- The garbage must be separated into burnable and unburnable items.  
ゴミは分別してください。分別方法がわからなければスタッフに問い合わせてください。
- You can take a lunch at “Restaurant Popura” where is located Sousei bilding1F.  
Also, you can buy refreshments at shop on 2F.  
昼食は創成棟 1F のレストランポプラ（アラカルト形式）を各自利用してください。創成棟 2F の売店ではサンドイッチ、弁当等を販売しています。  
Refreshment at evening (July 23th to 27th) can be bought at shop on 2F. (~ 19:00)
- The building where the Workshop is held on, will be rocked automatically at 6:00pm  
実習が行われるポストゲノム棟は **18 時**に入口がロックされます。
- **For improvement of the security, following procedures are prohibited;**  
**1, Connect personal flash memory to the PC in the laboratory.**  
**2, Connect a personal PC to the network in the laboratory.**  
Please ask the staff, if you would like to transfer data and the network connection.  
セキュリティーの観点から、以下の行為を禁止します。  
1. 個人の判断で実験室の PC に個人のフラッシュメモリーを接続すること。  
2. 個人の判断で実験室のネットワークに個人の PC を接続すること。  
データ移動、ネットワーク接続は必ず、スタッフの許可を得てからにしてください。

# Program

## July 23th (Mon)

9 : 30 ~ 10 : 00 Opening (Masataka Kinjo)  
10 : 00 ~ 11 : 00 Lecture 1 (Vladana Vukojević)  
11 : 00 ~ 12 : 00 Lecture 2 (Thorsten Wohland)

12 : 00 ~ 13 : 00 Lunch

You can take a lunch at “Restaurant Popura” 1F. (10am-2pm)  
refreshments at shop on 2F (10am-7pm)

13 : 00 ~ 17 : 00 Hands on FCS in solution and Data analysis  
17 : 00 ~ 19 : 00 Get-together party

## July 24th (Tue)

9 : 30 ~ 10 : 30 Lecture 3 (Sho Oasa)  
10 : 30 ~ 11 : 30 Lecture 4 (Vladana Vukojević)

12 : 00 ~ 13 : 00 Lunch

13 : 00 ~ 17 : 00 Hands on FCS on cells  
17 : 00 ~ 19 : 00 Data analysis (FCS on cells)

## July 25th (Wed)

9 : 30 ~ 10 : 30 Lecture 5 (Thorsten Wohland)  
10 : 30 ~ 11 : 30 Lecture 6 (Thorsten Wohland)

12 : 00 ~ 13 : 00 Lunch

13 : 00 ~ 17 : 00 Hands on FCCS in solution  
17 : 00 ~ 19 : 00 Data analysis (FCCS in solution)

## July 26th (Thu)

9 : 30 ~ 10 : 20 Lecture 7 (Atsushi Matsuda)  
10 : 20 ~ 11 : 10 Lecture 8 (Ikuro Wada)  
11 : 10 ~ 12 : 00 Lecture 9 (Vladana Vukojević)

12 : 00 ~ 13 : 00 Lunch

13 : 00 ~ 17 : 00 Hands on FCCS on cells

17 : 00 ~ 19 : 00 Data analysis (FCCS on cells)

July 27th (Fri)

9 : 30 ~ 10 : 45 Lecture 10 (Thorsten Wohland)

10 : 45 ~ 12 : 00 Lecture 11 (Thorsten Wohland)

12 : 00 ~ 13 : 00 Lunch

13 : 00 ~ 17 : 00 Hands on imaging FCS on cells

July 28th (Sat)

9 : 00 ~ 12 : 00 Data analysis (Imaging FCS on cells)

12 : 00 ~ 13 : 00 Lunch

13 : 00 ~ 19 : 00 Student presentation preparation

July 29th (Sun)

9 : 00 ~ 12 : 00 Examination: Student presentations

12 : 00 ~ 13 : 00 **Offer Certificate and Farewell party**

## Time Table 2018 (July 23th to 29th)

July 22 <sup>rd</sup> Sunday	July 23 <sup>th</sup> Monday	July 24 <sup>th</sup> Tuesday	July 25 <sup>th</sup> Wednesday	July 26 <sup>th</sup> Thursday	July 27 <sup>th</sup> Friday	July 28 <sup>th</sup> Saturday	July 29 <sup>th</sup> Sunday
09:00-9:30	Opening						
9:30-10:30	Vladana Vukojević Basic Live Cell	Sho Oasa Background Effect	Thorsten Wohland Artefact FCS	Astushi Matsuda Super Rez Ikuo Wada PCH	Thorsten Wohland Imaging FCS & ICS	Thorsten Wohland Imaging FCS data analysis	Examination: Student presentations
10:30-11:30	Thorsten Wohland FCS basics	Vladana Vukojević FCS live cell	Thorsten Wohland FCCS basics	Vladana Vukojević FCCS live cell	Thorsten Wohland ICS tutorial		
12:00-13:00	LUNCH	LUNCH	LUNCH	LUNCH	LUNCH	LUNCH	
13:00-14:00	Hands on FCS in solution	Hands on FCS on cells	Hands on FCCS in solution	Hands on FCCS on cells	Hands on Imaging FCS on cells	Student presentation preparation	Farewell party
14:00-15:00	Yamamoto	Kitamura	Oasa	Fukushima	Oasa		
15:00-16:00	Fukushima	Shimizu		Yamashita			
16:00-17:00	Data analysis						
17:00-18:00	Get Together	FCS data analysis	FCCS data analysis	FCCS data analysis			
18:00-19:00							
Number of Group	2	2	2	1 or 2	Each		

## Lecture Program

### July 23th (Mon)

*Lecture 1* 9:30 ~ 10:30

**“Fluorescence microscopy from the very beginning”**

Vladana Vukojević

(Department of Clinical Neuroscience,  
Center for Molecular Medicine, Karolinska Institute)

*Lecture 2* 10:30 ~ 11:30

**“Basics of Fluorescence Correlation Spectroscopy”**

Thorsten Wohland

(Department of Biological Sciences and Chemistry, Center For Bioimaging Sciences,  
National University of Singapore)

### July 24th (Tue)

*Lecture 3* 9:300 ~ 10:30

**“Brightness Analysis in Fluorescence Correlation Spectroscopy”**

Sho Oasa

(Department of Clinical Neuroscience,  
Center for Molecular Medicine, Karolinska Institute)

*Lecture 4* 10:30 ~ 11:30

**“FCS live cell”**

Vladana Vukojević

(Department of Clinical Neuroscience,  
Center for Molecular Medicine, Karolinska Institut)

**July 25th (Wed)**

*Lecture 5* 9:30 ~ 10:30

**“Artifacts of Fluorescence Correlation Spectroscopy”**

Thorsten Wohland

(Department of Biological Sciences and Chemistry, Center For Bioimaging Sciences,  
National University of Singapore)

*Lecture 6* 11:00 ~ 12:00

**“Basics of Fluorescence Cross-Correlation Spectroscopy”**

Thorsten Wohland

(Department of Biological Sciences and Chemistry, Center For Bioimaging Sciences,  
National University of Singapore)

**July 26th (Thr)**

*Lecture 7* 9:30 ~ 10:20

**“Super resolution microscopy”**

Asushi Mastuda

(Advanced ICT Research Institute Kobe, National Institute of  
Information and Communications Technology)

*Lecture 8* 10:20 ~ 11:10

**“Photon counting histogram”**

Ikuo Wada

(Department of Cell Science, Institute of Biomedical Sciences,  
Fukushima Medical University)

*Lecture 9* 11:10 ~ 12:00

**“FCCS live cell”**

Vladana Vukojević

(Department of Clinical Neuroscience,  
Center for Molecular Medicine, Karolinska Institute)

**July 27th (Fri)**

*Lecture 10* 9:30 ~ 10:45

**“Imaging FCS modalities”**

Thorsten Wohland

(Department of Biological Sciences and Chemistry, Center For Bioimaging Sciences,  
National University of Singapore)

*Lecture 11* 10:45 ~ 12:00

**“The FCS Diffusion Law”**

Thorsten Wohland

(Department of Biological Sciences and Chemistry, Center For Bioimaging Sciences,  
National University of Singapore)

**July 28th (Sat)**

*Lecture 15* 9:00 ~ 12:00

**“Imaging FCS Data Fitting”**

Thorsten Wohland

(Department of Biological Sciences and Chemistry, Center For Bioimaging Sciences,  
National University of Singapore)