

# BF<sup>Gamma</sup> School

## Homotopy Theory of Foliations

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- 日程・場所

2018年3月12日(月) – 3月14日(水)  
中央大学理工学部, 5号館3階5334号室  
112-8551 東京都文京区春日 1-13-27

- 講演予定者

Elmar Vogt(Freie U., Berlin), Gaël Meigniez(U. Bretagne Sud), Sam Nariman(Northwestern U.),  
森田 茂之(東京大学)

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- Date and Venue

March 12th (Mon.) – March 14th (Wed.), 2018  
Room: 5334, 3rd floor, No. 5 Building,  
Faculty of Science and Engineering, Chuo University,  
1-13-27 Kasuga, Bunkyo-ku, Tokyo, 112-8551, Japan

- Speakers

Elmar Vogt(Freie U., Berlin), Gaël Meigniez(U. Bretagne Sud), Sam Nariman(Northwestern U.),  
Shigeyuki Morita(Univ. Tokyo)

- Program

	March 12 (Mon)	March 13 (Tue)	14 (Wed)
10:30-12:00		Vogt-2	Meigniez-3
12:00-13:30		Lunch	Lunch
13:30-14:30	Meigniez-1	Nariman-1	Nariman-3
15:00-16:00	Vogt-1	Meigniez-2	Vogt-3
16:30-17:30	Morita	Nariman-2	Wine Party(16:15~)

- **Title and Abstract**

Gaël Meigniez (Université de Bretagne-Sud):

Quasi-complementary foliations and the Mather-Thurston theorem

Elmar Vogt (Freie Universität Berlin):

Talk 1 : A short report on the importance of  $B\Gamma$  for foliations and some basics about simplicial spaces and classifying spaces of categories.

Talk 2 : A discrete monoid model for  $B\Gamma$  and some homotopy theory of topological monoids (following Segal)

Talk 3 : The approach of McDuff and Segal to the Mather-Thurston Theorem.

Why  $B\Gamma$  and what it is [lecture note]

Shigeyuki Morita (University of Tokyo, Emeritus):

(Non-)triviality of characteristic classes on flat bundles [abstract]

Sam Nariman (Northwestern University):

On the homology of diffeomorphism groups made discrete [abstract]

- **Access**

About a 15-minute walk form JR Soubu Line Suidoubashi Station

About a 5-minute walk form Tokyo Metro Marunouchi Line or Nanboku Line Kourakuen Station

About a 7-minute walk form Tokyo Metro Mita Line or O-edo Line Kasuga Station

Click [here](#) for a map (in Japanese)    Click [here](#) for a map (in English)

## Abstracts

### Why $B\Gamma$ and what is it [click here](#)

Elmar Vogt

### (Non-)triviality of characteristic classes on flat bundles

Shigeyuki Morita

We discuss non-triviality and triviality of various characteristic classes, such as the Euler class and the Borel regulator classes, on flat vector bundles as well as flat manifold bundles.

### On the homology of diffeomorphism groups made discrete

Sam Nariman

Let  $G$  be a finite dimensional Lie group and  $G^\delta$  be the same group with the discrete topology. The classifying space  $BG$  classifies principal  $G$ -bundles and the classifying space  $BG^\delta$  classifies flat principal  $G$ -bundles (i.e. those bundles that admit a connection whose curvature vanishes). The natural homomorphism from  $G^\delta$  to  $G$  induces a continuous map from  $BG^\delta$  to  $BG$ . Milnor conjectured that this map induces an equivalence after the profinite completion. In these three talks, we discuss the same map for infinite dimensional Lie groups, in particular for the diffeomorphism group of circle and surfaces and symplectomorphisms of surfaces. In these cases, we use techniques from homotopy theory to show that the map from  $BG^\delta$  to  $BG$  induces a split surjection on cohomology with finite coefficients in the stable range. I will also discuss applications of these results in foliation theory, in particular, characteristic classes of flat surface bundles.