

# Knots, Contact Geometry and Floer Homology

## Tambara workshop

May 28 - 31, 2010

Tambara Institute of Mathematical Sciences

The University of Tokyo

KamiHotticho, Numata, Gumma

### Introductory Lectures

Matt Hedden (Michigan State University)

Michael Hutchings (University of California, Berkeley)

András Juhász (University of Cambridge)

### Talk Schedule

Time	28 May FRI	29 May SAT
9:00–10:00	—	Hutchings
10:30–11:30	—	Juhász
15:00–15:30	—	Kawamura
15:30–16:00	—	Huang
16:30–17:00	Kitayama	Farris
17:00–17:30	Yonezawa	Yamaguchi

Time	30 May SUN	31 May MON
9:00–10:00	Hedden	Hedden
10:30–11:30	Hutchings	Juhász
14:30–15:00	Kawamuro	—
15:15–15:45	Choi	—
15:45–16:15	Tange	—
16:30–17:00	Gripp	—
17:00–17:30	Krouglov	—

## Titles of lectures

Matt Hedden

Introduction to Ozsváth-Szabó theory

Michael Hutchings

Quantitative embedded contact homology

András Juhász

(1) Sutured manifolds and sutured Floer homology

(2) The decomposition formula in sutured Floer homology

## Titles of talks

Keon Choi (University of California, Berkeley)

Symplectic homology and contact homology

David Farris (University of California, Berkeley)

The embedded contact homology of circle bundles over Riemann surfaces

Vinicius Gripp Barros Ramos (University of California, Berkeley)

Absolute indexes in Floer homologies

Yang Huang (University of Southern California)

A proof the classification theorem of overtwisted contact structures via convex surface theory

Tomomi Kawamura (Nagoya University)

An estimate of the Rasmussen invariant for links

Keiko Kawamuro (The University of Iowa)

Title: Polynomial invariant of pseudo-Anosov maps.

Abstract: I will introduce a new invariant of pseudo-Anosov maps of surfaces. If a pseudo-Anosov map is the monodromy of a fibered hyperbolic knot in  $S^3$  and it admits an orientable train track, then our polynomial coincides with the Alexander polynomial. This is a joint work with Joan Birman and Peter Brinkmann.

Takahiro Kitayama (The University of Tokyo)

Non-commutative Reidemeister torsion and Morse-Novikov theory

Vladimir Krouglov (Institute of Mathematics of NAS of Ukraine)

On the geometry of subtiemannian structures of 3-manifolds

Motoo Tange (RIMS, Kyoto University)

From Alexander polynomials with lens space surgery to Berge's list

Yoshikazu Yamaguchi (Tokyo Institute of Technology)  
On the twisted Alexander polynomial for metabelian  $SL(2, \mathbb{C})$ -representations with  
the adjoint action

Yasuyoshi Yonezawa (Nagoya University)  
Quantum  $(sl_n, \wedge V_n)$  link invariant and matrix factorizations.