EXTENDED PROCEEDINGS OF

Oxford (CMI and C&S) workshop on IUT theory of Shinichi Mochizuki

December 7-11 2015, L3 Math Institute Univ. Oxford

December 7

17:20-18:00 *Discussions*

December 8

9:00-11:00 *Skype session with Shinichi Mochizuki*

17:35-18:00 *Discussions*

December 9

11:15-12:15 Tamás Szamuely *Geometry and semi-graphs of anabelioids* 10

14:10-15:10 Emmanuel Lepage *Tempered fundamental group of semi-graphs of anabelioids* 11

15:45-16:15 Go Yamashita *Motivation from Hodge-Arakelov theory* 12

16:30-17:30 Kiran Kedlaya *Etale theta function* 13

17:30-18:00 *Discussions*

December 10

9:00-10:00 Kiran Kedlaya *Etale theta function* 13

10:15-11:15 Chung Pang Mok *IUT, Introduction to (Hodge) theatres* 14

11:45-12:45 Chung Pang Mok *IUT, Introduction to (Hodge) theatres* 14

13:50-14:50 Chung Pang Mok *IUT, Multiradiality of the theta environment* 15

15:20-16:20 Yuichiro Hoshi *IUT, Hodge-Arakelov-theoretic evaluation* 16

16:35-17:35 Yuichiro Hoshi *IUT, Hodge-Arakelov-theoretic evaluation* 16

17:35-18:00 *Discussions*

December 11

9:00-10:00 Go Yamashita *IUT,* [IUT-III] 17

10:15-11:15 Go Yamashita *IUT,* [IUT-III] 17

11:45-12:45 Go Yamashita IUT, [IUT-III] 17

13:40-15:40 *Skype session with Shinichi Mochizuki* 18

16:10-17:10 Go Yamashita *IUT,* [IUT-III-IV], *with some remarks on the language of species* 19

17:10-17:30 Ivan Fesenko *Summary and what's next*

0 see this page for survey texts of IUT which you may find useful to read first

1 this proof can be viewed as an elementary guide or blueprint for IUT, see [B] and also this table; the key inequality is actually the Milnor-Wood inequality, see e.g. this paper

2 [NB] and [AE]

3 Sect. 1-2 of [IUT-IV] without proof of Th 1.10 of [IUT-IV]

4 these follow a very recent survey of IUT by Yuichiro Hoshi, in Japanese.
One can also recommend three slide talks of the same speaker at a RIMS conference in December 2015 available from section Lectures of this page

5 [TAAG-I-II]

6 sect.1 of [TAAG-III]

7 sect. 2 and 4 of [TAAG-III]

8 [F], see also Responses to questions on Frobenioids by Shinichi Mochizuki, in particular Response 8

9 [F], see also Responses to questions on Frobenioids by Shinichi Mochizuki, in particular Response 8

10 [A]

11 [A] and sect. 2 of [IUT-I]

12 [HAT] and slides 12-23 of a talk by Go Yamashita at RIMS in March 2015

13 [ET], picture of covers

14 [IUT-I]

15 sect. 1 of [IUT-II]

16 sect. 2-4 of [IUT-II]

17 [IUT-III]

18 see in particular Response on a question of Fucheng Tan by Shinichi Mochizuki

19 [IUT-III] and sect. 1 of [IUT-IV], with some remarks on the language of species, sect. 3 of [IUT-IV]

All papers below are authored by Shinichi Mochizuki and available, often with comments, from this page

[A] The geometry of anabelioids, Publ. Res. Inst. Math. Sci. 40 (2004), 819–881;

Semi-graphs of anabelioids, Publ. Res. Inst. Math. Sci. 42 (2006), 221–322

[AE] Arithmetic elliptic curves in general position, Math. J. Okayama Univ. 52 (2010), 1–28

[B] Bogomolov's proof of the geometric version of the Szpiro conjecture from the point of view of inter-universal Teichmüller theory,
preprint 2015

[ET] The étale theta function and its frobenioid-theoretic manifestations, Publ. Res. Inst. Math. Sci. 45 (2009), 227–349

[F] The geometry of frobenioids I: The general theory, Kyushu J. Math. 62(2008), 293–400;

The geometry of frobenioids II: Poly-Frobenioids, Kyushu J. Math. 62 (2008), 401–460

[HAT] A survey of the Hodge–Arakelov theory of elliptic curves I, in Proc. of Symp. Pure Math. 70, AMS (2002), 533–569;

A survey of the Hodge–Arakelov theory of elliptic curves II, Adv. Stud. Pure Math. 36, Math. Soc. Japan (2002), 81–114

[IUT] Inter-universal Teichmüller theory I: Constructions of Hodge theaters, preprint 2012–2015;

Inter-universal Teichmüller theory II: Hodge-Arakelov-theoretic evaluation, preprint 2012–2015;

Inter-universal Teichmüller theory III: Canonical splittings of the log-theta-lattice, preprint 2012–2015;

Inter-universal Teichmüller theory IV: Log-volume computations and set-theoretic foundations, preprint 2012–2015

[NB] Noncritical Belyi maps, Math. J. Okayama Univ. 46 (2004), 105–113

[TAAG] Topics in absolute anabelian geometry I: Generalities, J. Math. Sci. Univ. Tokyo 19 (2012), 139–242;

Topics in absolute anabelian geometry II: Decomposition groups and endomorphisms, J. Math. Sci. Univ. Tokyo 20 (2013), 171–269;

Topics in absolute anabelian geometry III: Global reconstruction algorithms, J. Math. Sci. Univ. Tokyo 22 (2015), 939-1156