

MIF Status Report

Yuta Michimura

Department of Physics, University of Tokyo

on behalf of the Main Interferometer subgroup

What We Have Done So Far

- Main interferometer design
 - mirror specs (RoC, reflectivity, etc)
 - lengths, layout
 - signal extraction scheme, length/alignment control
- Noise requirements for IFO components
 - mirror displacement noise [VIS]
 - laser intensity/frequency noise [IOO, LAS]
 - modulation phase/amplitude noise [IOO]
 - scattered light [AOS]
 - beam jitter [IOO] etc
- MIF Design Document [JGW-T1200913](#)
- Y. Aso, Y. Michimura, K. Somiya+, [PRD 88, 043007 \(2013\)](#)

ISC Bi-Weekly Meeting

- Started this July
- 14:00-15:00 on Monday (when there's no chief meeting)
- Not MIF meeting, but **ISC** meeting
focusing on making real stuff
ISC = Interferometer Sensing and Control
- Currently consisting of MIF, IOO, MIR, AOS, DGS
people mainly (please join us!)
- Recent hot topics
 - task list and task assignment
 - man power
 - optical simulation with “real” mirror
 - output optics layout

ISC Tasks for iKAGRA

- Analog electronics (MIF, IOO, AEL)
Michimura, Aso, Nakano
- Integration with digital control (MIF, IOO, DGS)
Kokeyama, Michimura, **students**
- Cameras (AOS)
Kokeyama, Aso, **students**
- REFL bench (IOO)
U. Toyama(?)
- Initial alignment (MIF)
Michimura, **students**
- IMC commissioning (IOO) Kawamura + **everyone**
- Michelson commissioning (MIF) Aso + **everyone**
- ISC modeling (MIF, IOO)
Michimura, **students**



ISC Tasks for bKAGRA

- IFO optical simulations (MIF)
- ISC modeling (MIF, IOO)
- AS port design (IOO)
- Other signal ports (IOO)
- Laser power management (IOO, MIF, CRY)
- Initial alignment (MIF)
- Lock acquisition (MIF, IOO)
- Analog electronics (MIF, IOO, AEL)
- Integration with digital control (MIF, IOO, DGS)
- Cameras (AOS)
- Commissioning (MIF)

(Active) ISC People

- Y. Aso (NAOJ; MIF chief)
- Y. Michimura (UTokyo; MIF sub-chief)
- K. Somiya (Titech; MIF, IOO)
- K. Kokeyama (ICRR; DGS sub-chief, MIF, IOO)
- O. Miyakawa (ICRR; DGS/AEL chief)
- M. Nakano (ICRR; IOO elite)
- E. Hirose (ICRR; MIR chief)
- T. Akutsu (NAOJ; AOS chief, VIS)
- T. Uehara (NDA; IOO)
- H. Yamamoto (Caltech; JANGO)
- K. Arai (Caltech; JANGO)
- and you !

iKAGRA Readiness

Not ready ← → Ready

	PSL	IMC	Michelson
Analog Electronics	PMC servo board not yet	handmade RFPD not yet	delivered by end of Aug
Digital Control	MEDM, rack test on going	MEDM, rack test on going	making RT model
Initial alignment	done	made a plan	vague plan
Output tables	-	designed	no design
Cameras	testing	testing	testing
Modeling	exists but not fully	exists but not fully	exists but not fully
Commissioning	FRC not done	beam ready, no mirrors	no beam