asymptotics in astrophysics iTHEMS workshop

Tuesday 25 February 2025 - Friday 28 February 2025

Integrated Innovation Building (IIB)

Scientific Programme

Daily themes

Tuesday: Theoretical physics (Kelly, Honda)

Wednesday: Black hole quasinormal modes (Oshita, Chen, Namba)

Thursday: Asteroseismology (Takata, Shimada)

Friday: Stellar hydrodynamics and supernovae (McNeill, DuPont)

Daily Timetable

9:30am~ Morning session 1

~10:45am coffee break

11:15am~ Morning session 2

~12:30pm Lunch (Tuesday, Wednesday on site buffet)

2:00pm~ Afternoon session 1

~3:15pm Coffee break

3:45pm~ afternoon session 2

~5:00pm Evening session

8:00pm workshop close

	Theoretical physics	**Black hole quasinormal modes**	**Stellar oscillations, asteroseismology**	**Stellar hydrodynamics**
9:30am-10:45am	Christy Kelly *Foundations of asymptotics and perturbation theory*	Naritaka Oshita *Introduction to black hole quasinormal modes*	Masao Takata *History and status of asteroseismology*	Lucy McNeill *Buoyancy wave transport in evolved massive stars*
10:45am - 11:15am	Coffee break	Coffee break	Coffee break	Coffee break
11:15-12:30pm	Tutorial / demonstration *Fundamental physics results from asymptotics*	Tutorial / demonstration on *Numerical computation of QNM frequencies*	Tutorial / demonstration (TBD)	Tutorial / demonstration (TBD)
12:30pm - 2pm	Discussion lunch	Discussion lunch	Lunch outside	Lunch outside
2pm - 3:15pm	Masazumi Honda *Resummations of divergent series*	Che-Yu Chen *black hole*

shadows and eikonal QNMs|Ryota Shimada *Detected magnetic fields in the cores of red giants by asteroseismology and models to interpret them*|Marcus DuPont *Asymptotics in hydrodynamics solvers* (*title TBC)*|

|*3:15pm-3:45pm*|*Coffee break*|*Coffee break*|*Coffee break*|*Coffee break*|

|*3:45pm - 5:00pm*|*Tutorial / demonstration* Application of resurgence|*Ryo Namba* Exact WKB method application to black hole QNMs*|Tutorial / demonstration (TBD)|Tutorial / demonstration (TBD)|

|5:00pm - 8pm|Poster session|Discussion|Banquet| |

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