

## The Astrophysical Black Hole Merger Workshop VI

**Location:** Room 2150 (9am-6pm), Building 78

### **Organizers:**

Manuela Campanelli <[manuela@astro.rit.edu](mailto:manuela@astro.rit.edu)>

Julian Krolik <[jhk@jhu.edu](mailto:jhk@jhu.edu)>

### **Administrative Assistants**

Daniel Mancuso - Administrative & Financial Coordinator <[dtmsma@rit.edu](mailto:dtmsma@rit.edu)>,

Qin Ye - Sr. Staff Assistant <[qxy6474@rit.edu](mailto:qxy6474@rit.edu)>

### **Program: Tuesday, June 21**

9:30am Welcome and logistics

### **Global Status Reports:**

9:35--10:05am First work on circumbinary disks feeding mini-disks

Resummed spacetime: speed, no artifacts in connections, spins

Toward numerical relativity + MHD

Blue Waters allocation (overview)

New, broader program at RIT (multi-messenger + 3G)

*10 min discussion*

10:15--10:45am Progress in circumbinary stream dynamics and thermodynamics

Interaction of black hole spin with accretion

Multi-patch development

*10 min discussion*

10:55--11:10am Coffee break

### **Detailed Status Reports:**

11:10--11:30am "Lump" paper

MHD in multi-patch

*10 min discussion*

11:40am--noon Tidal truncation radii in pN

"Sloshing" and spiral waves

First 3-d runs

*10 min discussion*

12:10pm-12:30pm Spacetime construction, adding spins

*10 min discussion*

12:40--2pm Lunch

2:00--2:20pm Time-dependent Monte Carlo radiation transfer

*10 min discussion*

2:30--2:50pm Multi-patch: heterogeneous time-steps, add/remove patches

First science/test run: stabilizing boundary conditions

*10 min discussion*

3:00--3:20pm B  $\rightarrow$  A and IllinoisGRHMD

*10 min discussion*

3:30--3:45pm Coffee break

3:45--4:05pm NR in spherical coordinates

*10 min discussion*

4:15--4:35pm TBA

*10 min discussion*

4:45--5:05pm Transition to merger

*10 min discussion*

5:15--5:25pm Visualization with Visit

**Program: Wednesday, June 22**

The Coming Year

9:30--10:30am Multi-patch development methods paper, introducing MHD,

HARM3D version reconciliation

10:30--10:45am Coffee break

10:45--11:45am Multi-patch applied to BBH problems:

stream/mini-disk shocks, sloshing, accretion-sharing, spin-orbit interactions,.....

noon -- 1:30pm Lunch

1:30--2:30pm NR+MHD from inspiral to merger, NR in spherical coordinates:

Harm3D vs EinsteinToolkit vs IllinoisGRHMD

---End of Meeting/Travel

**Participants:**

Scott Noble <[scott-noble@utulsa.edu](mailto:scott-noble@utulsa.edu)>

Julian Krolik <[jhk@jhu.edu](mailto:jhk@jhu.edu)>

Zach Etienne <[zachetie@gmail.com](mailto:zachetie@gmail.com)>

Thomas Baumgarte <[tbaumgarte@bowdoin.edu](mailto:tbaumgarte@bowdoin.edu)>

Jeremy Schnittman <[Jeremy.D.Schnittman@nasa.gov](mailto:Jeremy.D.Schnittman@nasa.gov)>

"Bernard J. Kelly" <[bernard.j.kelly@nasa.gov](mailto:bernard.j.kelly@nasa.gov)>

Roseanne Cheng <[rcheng8@jhu.edu](mailto:rcheng8@jhu.edu)>

Hotaka Shiokawa <[hshiokawa@cfa.harvard.edu](mailto:hshiokawa@cfa.harvard.edu)>

John Baker <[john.g.baker@nasa.gov](mailto:john.g.baker@nasa.gov)>

**RIT participants:**

Brennan Ireland <[bmi5921@rit.edu](mailto:bmi5921@rit.edu)>

Dennis Bowen <[dbb2737@rit.edu](mailto:dbb2737@rit.edu)>

Joshua Faber <[jafsma@rit.edu](mailto:jafsma@rit.edu)>

Zachary Silberman <[zjs2405@mail.rit.edu](mailto:zjs2405@mail.rit.edu)>

Yosef Zlochower <[yosef@astro.rit.edu](mailto:yosef@astro.rit.edu)>

Jam Sadiq <[jxs1805@rit.edu](mailto:jxs1805@rit.edu)>

James Healy <[jchsma@rit.edu](mailto:jchsma@rit.edu)>

Richard O'Shaughnessy <[rossma@rit.edu](mailto:rossma@rit.edu)>

Carlos Lousto <[lousto@astro.rit.edu](mailto:lousto@astro.rit.edu)>

Jason Nordhaus <[jtnsma@rit.edu](mailto:jtnsma@rit.edu)>

**Remote Participants (Hang-out):**

Bruno C. Mundim <[mundim@th.physik.uni-frankfurt.de](mailto:mundim@th.physik.uni-frankfurt.de)>

Vassilios Mewes <[vassilios.mewes@uv.es](mailto:vassilios.mewes@uv.es)>

Mark Avara <[mavara@astro.umd.edu](mailto:mavara@astro.umd.edu)>

Hiroyuki Nakano <[hinakano@tap.scphys.kyoto-u.ac.jp](mailto:hinakano@tap.scphys.kyoto-u.ac.jp)>