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Massive Black Hole Mergers: Can we see what LISA will hear?\(^1\)
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Flight Center — Coalescing massive black hole binaries are formed when galaxies
merge. The final stages of this coalescence produce strong gravitational wave signals
that can be detected by the space-borne LISA. When the black holes merge in the
presence of gas and magnetic fields, various types of electromagnetic signals may
also be produced. Modeling such electromagnetic counterparts requires evolving the
behavior of both gas and fields in the strong-field regions around the black holes.
We have taken a first step towards this problem by mapping the flow of pressureless
matter in the dynamic, 3-D general relativistic spacetime around the merging black
holes. We report on the results of these initial simulations and discuss their likely
importance for future hydrodynamical simulations.

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