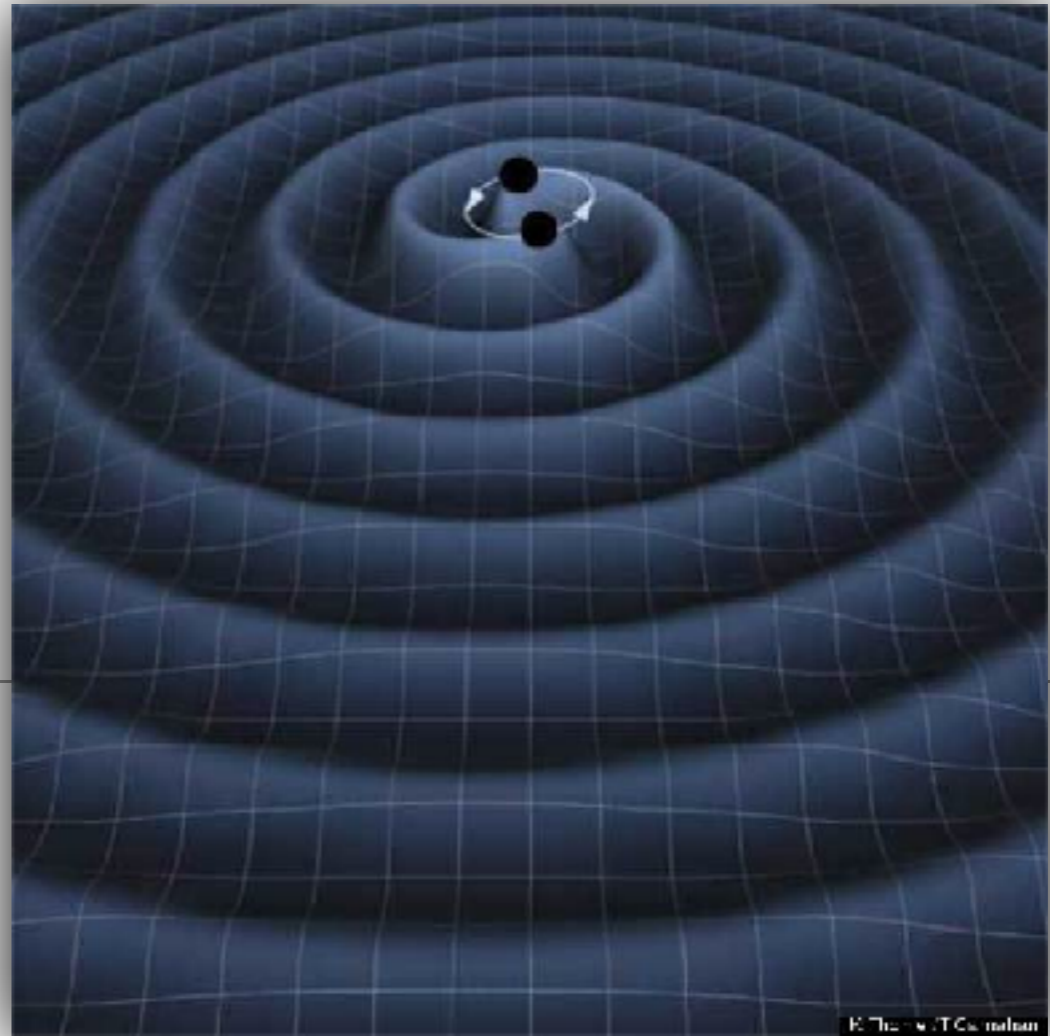


Status of McLachlan

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Einstein Toolkit Workshop, Trento, June 2016

The code

- Einstein spacetime evolution code written in Kranc by Erik Schnetter and Peter Diener
- Source file: `repos/McLachlan/m/McLachlan_BSSN.m`:
 - ~1500 lines of Mathematica code
 - Equations in abstract tensor notation and finite difference operators.
 - C++/Cactus/CCL code generation handled by Kranc.
- Couples to hydro thorns
- Works with AMR code Carpet and multipatch code Llama
- Can generate multiple variants of thorns:
 - Include different finite differencing orders / discretisations
 - Different formulations: BSSN (phi and W formulations), CCZ4
 - Various gauge conditions

How to generate

- `cd repos/McLachlan/m`
- `make McLachlan_BSSN.out`

Rewritten

- Rewritten for ET_2015_11 (Somerville)
- Parameter names changed to be more consistent
- Compatibility layer included: can still use old parameter files but will get warnings to update the deprecated parameters
- Very flexible options for code generation
- Optimisation options include automatic splitting of equations into separate functions for cache/performance reasons
- Paper references for equations