Psaltis & Johannsen 2012:

1. Goal: To match theoretical models to the level of accuracy reached with current observations of spinning neutron stars.
2. Obstacles: So far the Kerr metric is entirely described by two parameters: the mass and spin of the compact object. Also all orbits within this metric are characterized by the Carter constant. However, attempting to introduce any deviations from the Kerr metric while also satisfying Einsteins field equations means that the carter constant is not conserved along geodesics. Therefore, ray-tracing in a non-Kerr Metric requires integrating second order differential equations for individual geodesics, rather than using integrals of motion.
3. Approach: Integrating second order differential equations in order to consider the deviation of the quadrupole moments from the Kerr values
4. Results: Successfully describe an algorithm that calculates observables from moderately spinning neutron stars and black holes that violate the no-hair theorem, both of which are compact objects characterized by arbitrary quadruple moments. FUTURE WORK: Will explore the observability of the changes to the iron-lines for black holes in a future paper

P ́etri 2013

1. Goal:
2. Obstacles:
3. Approach:
4. Results:

Psaltis & Özel 2019

1. Goal:
2. Obstacles:
3. Approach:
4. Results:

Müller & Grave 2010

1. Goal:
2. Obstacles:
3. Approach:
4. Results: