

DRAFT RESOLUTION of the 28th General Assembly of IUPAP
to create an IUPAP Working Group on the Newtonian Constant of Gravitation G
(presented by the United States Liaison Committee of IUPAP)

WHEREAS the force law of Newton for the gravitational attraction of any massive bodies is one of the most fundamental equations in physics, and

WHEREAS the constant G in the force law was measured with modest accuracy in 1798 by Henry Cavendish using a torsion balance invented by Rev. John Michell,

with only modest improvement in the accuracy of measurements of G over the years since then

, and

WHEREAS the recent measurements of G are in disagreement with discrepancies that are roughly ten times the quoted uncertainties in some cases, and

WHEREAS this disagreement calls into question our ability to measure small forces on a laboratory scale, and

WHEREAS this disagreement raises the question of whether the Newtonian force law is a complete description of gravity at these distances, and

WHEREAS the uncertainty in the value of G is the limiting factor in our knowledge of the mass of the earth, and

WHEREAS there was a UK Royal Society scientific meeting in February 2014 entitled “The Newtonian constant of gravitation, a constant too difficult to measure?” that concluded that an oversight committee to provide advice on current and future measurements of G , should be formed, and

WHEREAS the aims of IUPAP include stimulating and promoting international cooperation in physics as well as sponsoring suitable international meetings and assisting in organizing committees, and

WHEREAS the current situation with the measurements of G is entirely unsatisfactory for physics and could likely be improved by creating the recommended oversight committee.

Therefore the 28th General Assembly of IUPAP this 7th day of November, 2014, resolves:

1. a Working Group on the Newtonian constant of gravitation is hereby created with members appointed by the IUPAP President.
2. The mission of the Working Group on the Newtonian constant of gravitation shall be to foster international scientific dialogue and cooperation in the physics of such measurements and to provide advice when requested to groups undertaking such measurements.
3. The Working Group on the Newtonian constant of gravitation is hereby empowered to formulate its mission statement and the scope of its mandate and to present such formulation to the IUPAP Council within 18 months time from the date of the appointment of its members.