The study of gluonic excitations: The phenomenon of confinement of quarks in hadrons is one of the most spectacular predictions of QCD, unlike anything seen before. It is also the basic feature of QCD that drives all of nuclear physics, from the masses of protons, neutrons and pions to the nucleon-nucleon interaction. New types of hadronic matter are predicted to exist such as exotic hybrid mesons and particles that consist of gluons only (glueballs). We search for them. (Jlab, FAIR)

Medical physics applications: Many cancer therapies involve the use of particle beams and sophisticated detectors. Measurements of the dose likely to be received by patients can be accurately modeled if data are available from nuclear reaction experiments. (MAXLAB)

Recent students from our group have found employment in a variety of jobs in the UK and worldwide, including IT, the financial service industry, medical physics and further research. They have all benefited from skills learned during their PhD: computing, data acquisition and analysis, experimental simulation and project management. Interested? Contact us.
The University of Glasgow’s Nuclear Physics Group studies the most fundamental properties of matter: particles, nuclei and the strong nuclear force that binds them together.

If you would like to take part in nuclear and hadron physics research at the highest international level, travel overseas to research facilities and conferences, develop the latest detector and GRID technologies for use in experiments or medical applications and study novel techniques for analysing data and interpreting results, join us!

Our group is currently involved in experimental programmes at:
- FAIR@GSI, Darmstadt, Germany
- Jefferson Lab (Jlab), Virginia, USA
- MAMI, Mainz, Germany
- MAXLAB, Lund, Sweden
- DESY, Hamburg, Germany

The study of hadron properties:
In order to construct a full theory of the nuclei, one needs to understand the properties of the constituents. Nucleons and their resonances have several properties, such as electromagnetic form-factors and spin structure which need to be understood at a basic level.

(Jlab, MAMI, DESY)

The study of Nucleon-Nucleon correlations: Experiments are carried out to study the short-range interaction of nucleons in nuclei. This research bridges the gap between the fundamental QCD theory of strong interactions and the more traditional view of nuclei where nucleons and mesons are the constituents.

(Jlab, MAMI)