

## Heavy Quarks on the Lattice

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B mesons are ideally suited to test the Standard Model Flavour Sector through experimental measurements of the CKM matrix elements  $|V_{ub}|$  and  $|V_{cb}|$ . Theoretical calculations of these matrix elements are also required, which is where lattice QCD steps in. However, heavy quarks cannot be placed on the lattice in the same manner as light quarks. The lattice introduces discretisation errors that are proportional to  $ma$ , the product of the quark mass and lattice spacing. If this product is of order unity or above, as is the case for heavy quarks on current lattices, the discretisation errors become uncontrolled. This talk will primarily discuss how an anisotropic fermion action (the Relativistic Heavy Quark action) can be used to circumvent this discretisation problem, and enable simulations of semi-leptonic B meson decays to calculate theoretical values for  $|V_{ub}|$  and  $|V_{cb}|$ .

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