In the first half of the talk we will discuss some results on the regularity of fractional integrals of modular forms. In particular, we compute the pointwise Hölder exponent and the spectrum of singularities for these functions in the regime of uniform convergence, and show that they satisfy an approximate functional equation.

In the second half of the talk we will discuss the lattice point counting problem associated to a three-dimensional revolution body. Apart from generalizing existing results, we focus in the particular case of a truncated revolution paraboloid, for which sharp bounds on the error exponent can be given via a Hardy-Littlewood bound, derived by a simplified version of the circle method.