

Comparing generic and special ranks on elliptic surfaces.

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We prove, for a large class of rational elliptic surfaces, that there are infinitely many fibres with rank at least equal to the generic rank plus two. We will also treat the problem of comparing ranks for elliptic K3 surfaces, proving, for a special class of K3 surfaces, that there are infinitely many fibres with rank at least the generic rank plus one. If time allows we will make a bridge between the problem of comparing generic and special ranks on rational elliptic surfaces and 1) Zariski density of rational points on del Pezzo surfaces of degree one, 2) unirationality of del Pezzo surfaces of degree two.