Foreword

The classification of non-singular del Pezzo surfaces is classical and well known. One of the striking features of the theory is that their geometry is governed by the Weyl groups of finite root systems. In this book, we extend this classical theory to the log del Pezzo surfaces of index one or two by completely determining the weighted graphs of the exceptional curves which appear in their standard resolutions (the *right resolutions*) of the singularities.

Our final result is quite similar to the classical case, and everything again is governed by finite root systems. However, the arguments used here are not so classical, relying essentially on the theory of K3 surfaces and of reflection groups in hyperbolic spaces attached to the Picard lattice of K3 surfaces.

This book grew up from a joint paper [AN88] in Russian by the present two authors. The authors hope that this enlarged and self-contained English exposition will be accessible to wider audience and will well serve as an introduction to the theory of del Pezzo surfaces and K3 surfaces