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Weil Conjectures, Perverse Sheaves and l'adic Fourier Transform

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- Describes the important generalisation of the original Weil conjectures
- For the first time the authors describe Deligne's work in the framework of the sheaf theoretic theory of perverse sheaves
- The l-adic Fourier transform is introduced as a powerful tool
- Presents important applications

In this book the authors describe the important generalization of the original Weil conjectures, as given by P. Deligne in his fundamental paper "La conjecture de Weil II". The authors follow the important and beautiful methods of Laumon and Brylinski which lead to a simplification of Deligne's theory. Deligne's work is closely related to the sheaf theoretic theory of perverse sheaves. In this framework Deligne's results on global weights and his notion of purity of complexes obtain a satisfactory and final form. Therefore the authors include the complete theory of middle perverse sheaves. In this part, the l-adic Fourier transform is introduced as a technique providing natural and simple proofs. To round things off, there are three chapters with significant applications of these theories.

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