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## Sommario/riassunto

This text explores the geometry and analysis of higher rank analogues of the symmetric spaces introduced in volume one. To illuminate both the parallels and differences of the higher rank theory, the space of positive matrices is treated in a manner mirroring that of the upper-half space in volume one. This concrete example furnishes motivation for the general theory of noncompact symmetric spaces, which is outlined in the final chapter. The book emphasizes motivation and comprehensibility, concrete examples and explicit computations (by pen and paper, and by computer), history, and, above all, applications in mathematics, statistics, physics, and engineering. The second edition includes new sections on Donald St. P. Richards's central limit theorem for  $O(n)$ -invariant random variables on the symmetric space of  $GL(n, \mathbb{R})$ , on random matrix theory, and on advances in the theory of automorphic forms on arithmetic groups.

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