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Sommario/riassunto	This monograph studies the heat kernel for the spin-tensor Laplacians on Lie groups and maximally symmetric spaces. It introduces many original ideas, methods, and tools developed by the author and provides a list of all known exact results in explicit form – and derives

them – for the heat kernel on spheres and hyperbolic spaces. Part I considers the geometry of simple Lie groups and maximally symmetric spaces in detail, and Part II discusses the calculation of the heat kernel for scalar, spinor, and generic Laplacians on spheres and hyperbolic spaces in various dimensions. This text will be a valuable resource for researchers and graduate students working in various areas of mathematics – such as global analysis, spectral geometry, stochastic processes, and financial mathematics – as well in areas of mathematical and theoretical physics – including quantum field theory, quantum gravity, string theory, and statistical physics.