

ENTROPY AND STATISTICAL MECHANICS: FOUNDATIONS

| | BG (thermal equilibrium) | q ≠ 1 (thermal metaequilibrium, nonequilibrium) |
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| Distribution of velocities at equilibrium | Maxwell 1860 | R. Silva, A.R. Plastino, J.A.S. Lima Phys Lett A 249, 401 (1998) R.S. Mendes and C. Tsallis Phys Lett A 285, 273 (2001) |
| Kinetic equation Molecular chaos hypothesis (<i>Stosszahlansatz</i>) | Boltzmann 1872 | J.A.S. Lima, R. Silva, A.R. Plastino Phys Rev Lett 86, 2938 (2001) G. Kaniadakis Physica A 296, 405 (2001) |
| Optimization of entropy with constraints | Gibbs 1902 | C. Tsallis J Stat Phys 52, 479 (1988) E.M.F. Curado and C. Tsallis J Phys A 24, L69 (1991) C. Tsallis, R.S. Mendes, A.R. Plastino Physica A 261, 534 (1998) |
| Steepest descent | Darwin-Fowler 1922 | S. Abe and A.K. Rajagopal J Phys A 33, 8733 (2000) |
| Microcanonical ensemble counting | Balian-Balazs 1987 Kubo et al 1988 | S. Abe and A.K. Rajagopal Phys Lett A 272, 341 (2000) Europhys Lett 55, 6 (2001) |
| Conditions of uniqueness of S | Shannon 1948 | R. J. V. Santos J Math Phys 38, 4104 (1997) |
| Compact conditions of uniqueness of S | Khinchin 1953 | S. Abe Phys Lett A 271, 74 (2000) |
| Limit theorems | De Moivre 1733 Laplace 1744 Gauss 1809 Lévy 1937 Khinchin 1949 | S. Umarov, C. Tsallis and S. Steinberg cond-mat/0603593 S. Umarov, C. Tsallis, M. Gell-Mann and S. Steinberg cond-mat/0606038 and /0606040 S. Abe and A.K. Rajagopal Europhys Lett 52, 610 (2000) |