Mixing the directions of thermodynamic time ALEXANDER KLI-
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Technologie — Conventional thermodynamics is formulated and tested in the world
populated almost solely by matter; it can be consistently extended to antimatter in
two mutually excluding ways: CP-invariant or CPT-invariant. While CP-invariant
thermodynamics is more or less conventional; its CPT-invariant counterpart results
in different directions of the thermodynamic time for matter and antimatter and in
their thermodynamic antagonism – antimatter seems to us very hot due to having
negative apparent temperatures. In spite of the similarity of thermodynamic prop-
erties of matter and antimatter, CPT-invariant thermodynamics favours conversion
of antimatter into matter (in our time). While thermodynamic properties of systems
and antisystems under conditions of CPT invariance are more or less clear; prop-
terties of mixtures of particles and antiparticles pose a more difficult problem. The
major difficulty is in evaluating implications of mixing of two different time primers
with the opposite direction of induced thermodynamic time. In the present work
we analyse the effect of mixing of directions of time resulting from mixing of matter
and antimatter under conditions of CPT-invariant thermodynamics.