Global isomorphism between molecular fluids and lattice models. Results and perspectives.

We present the approach to the description of liquid-vapor asymmetry. It is based on the geometric reformulation of the (approximate) linearities of the binodal diameter (law of rectilinear diameter) and the unit compressibility line (the Batschinsky law) in a form of projective mapping. We discuss explicit relations between the thermodynamic functions of the Lattice Gas model and the fluid including surface tension. On this basis we show that the critical compressibility factor of molecular fluids can be related with that of the lattice gas. We show how the associative properties of a fluid can be taken into account via the structure of the isomorphic lattice.