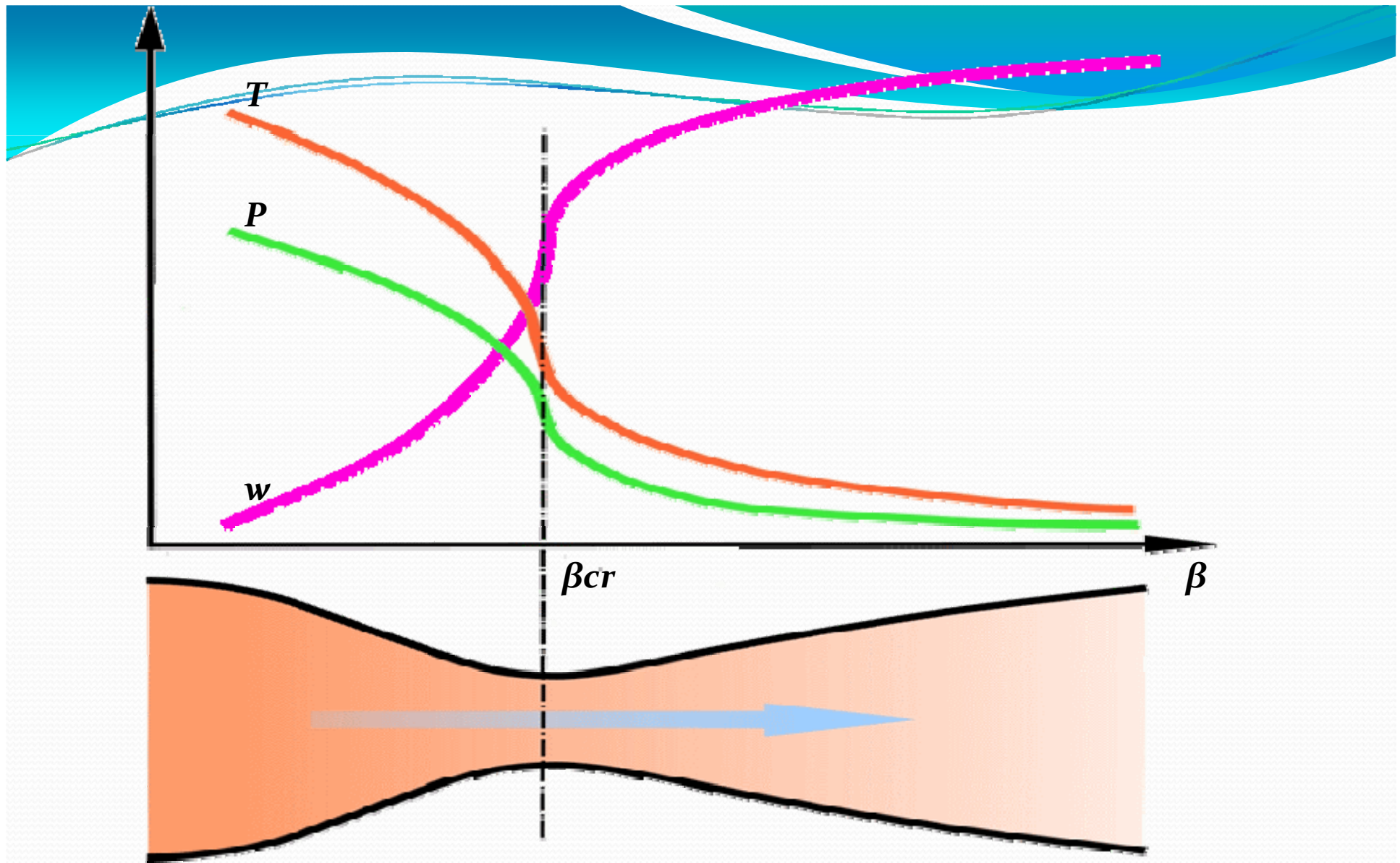


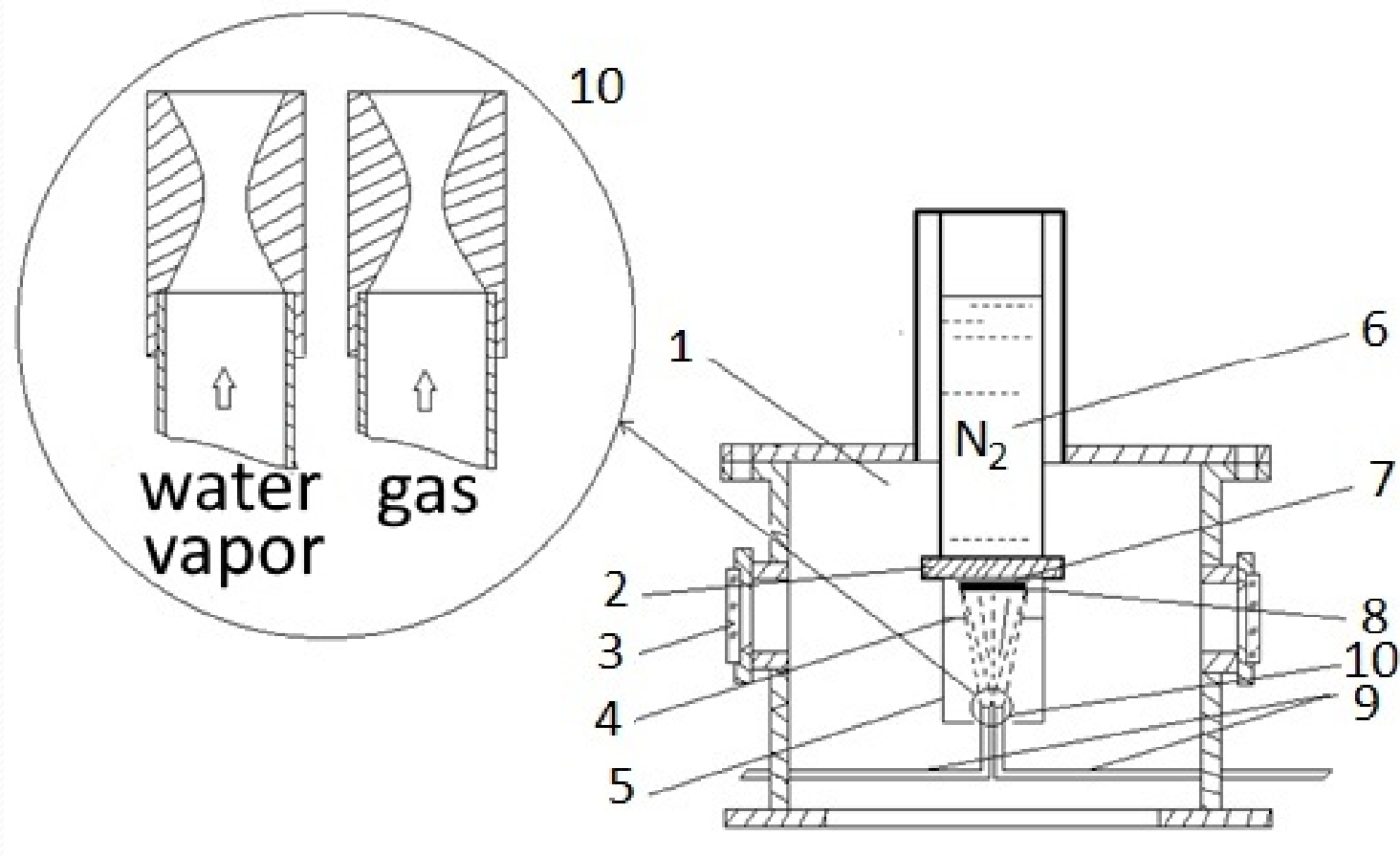
Crystallization of a water-gas mixture in supersonic molecular beams of water and ethane

Tomin A.S., Vinogradov A.V., Faizullin M.Z., Koverda V.P.

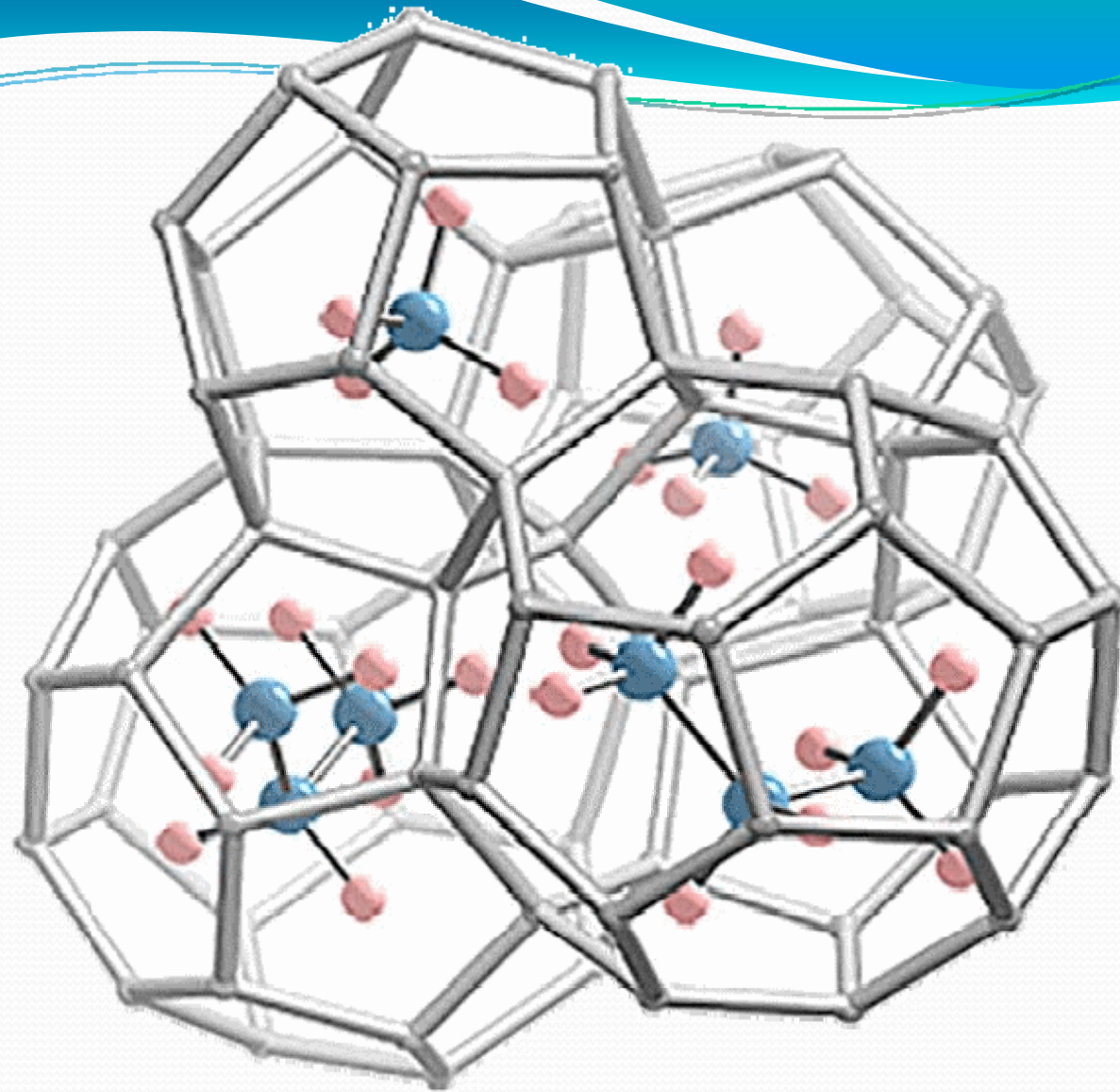
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The change in the thermodynamic parameters of the gas as the supersonic nozzle passes. T – temperature, P – pressure, w - flow velocity, β - differential head, β_{cr} - critical drop



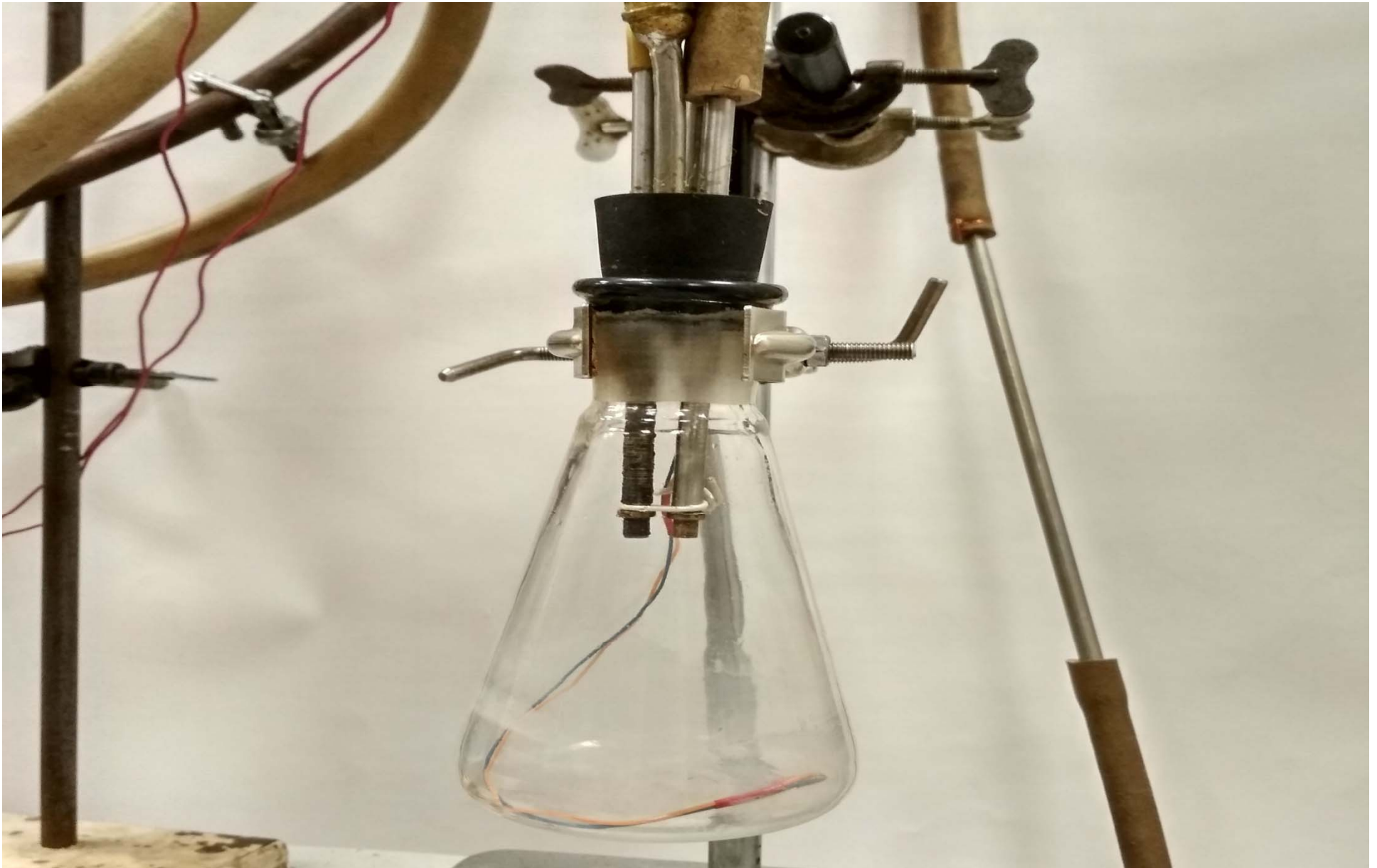
Vacuum cryostat: 1 – vacuum chamber, 2 – copper substrate, 3 – window, 4 – mask, 5 – shield, 6 – liquid nitrogen, 7 - capacitive sensor, 8 – sample, 9 – vapor lines, 10 – supersonic nozzles



Hydrate structure



Methane hydrate combustion



Plant with glass chamber

The decomposition of
the condensate of
water and ethane with
the evolution of gas

