C The principle of thermonuclear fusion

The **fusion** reaction that is most readily effected is that between **deuterium** (**D**) and **tritium** (**T**), two **isotopes** of **hydrogen** (see Figure). This reaction requires that the DT mix be brought to a temperature of 100 million degrees, and that it remain confined for a time meeting the *Lawson criterion*: the product of density by confinement time must be greater than 10^{20} s/m^3. To set up the conditions for fusion of a **light-element** plasma, two confinement methods have been developed: **magnetic confinement**, in tokamaks, corresponding to a stationary regime, where density of the order of 10^{20} m^{-3} is maintained for several seconds by means of a magnetic field; and **inertial confinement** by **laser** beams, or particle beams, an explosive regime where density reaches 10^{31} m^{-3} for some 10^{-11} s.

For further information: see Clefs CEA *No. 49, pp. 45–76.*