ABSTRACT

An ion source 2 has a heating furnace 4 for annealing a solid material 6 to generate a steam 8 and a plasma generator 16 for ionizing the steam 8 to generate a plasma 24. The ion source 2 is for generating ion beam. An indium trifluoride is used as said solid material which has been once heated at temperature in the range of 600°C to lower than 1170°C, thereby enabling to generate the indium ion beam in a stable amount. For the solid material 6, $In(OF)_xF_{3-x}$ (x is 1, 2 or 3) may be used.