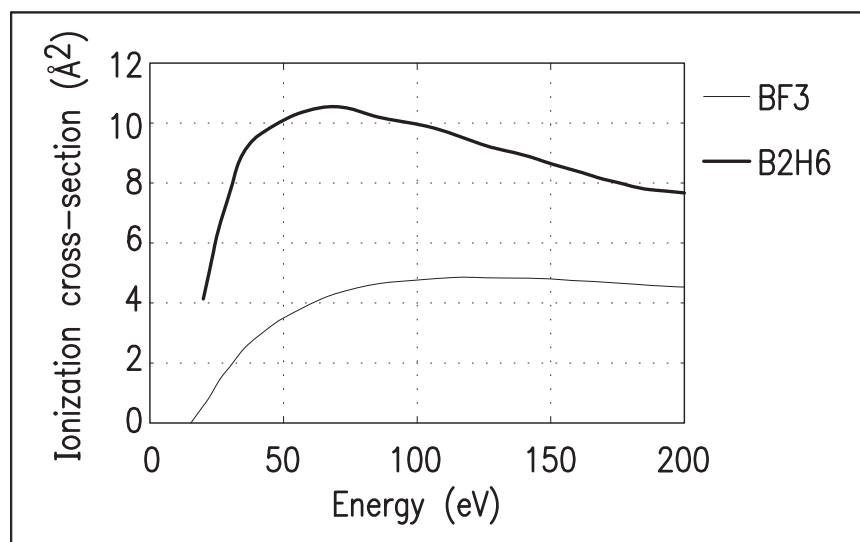


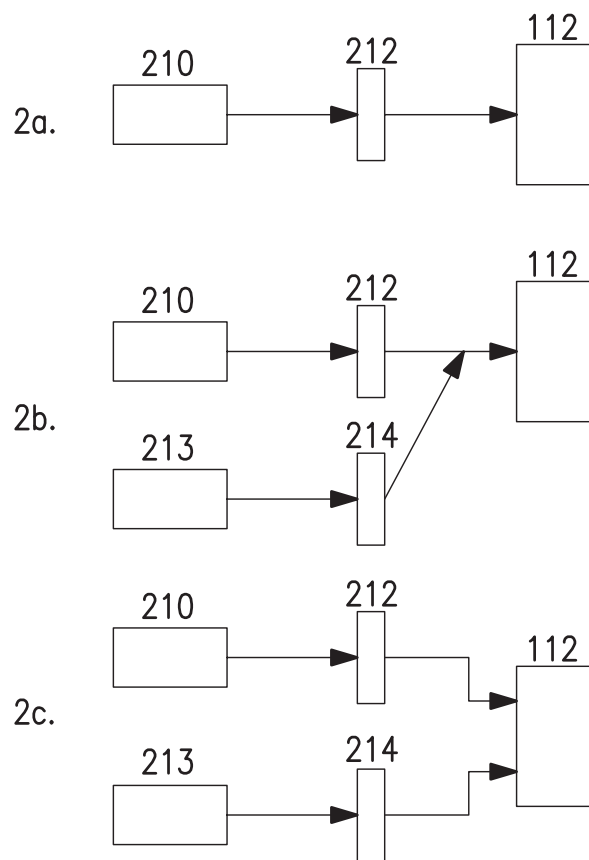
Table 1: Cathode and anode weight gain/loss summary

Dopant Gas Composition	Cathode weight gain/loss rate	Anode weight gain/loss rate
$^{11}\text{BF}_3$ only	+28.5 mg/hr	–
$^{11}\text{BF}_3$ + Xe/ H_2	+1.43 mg/hr	–0.75 mg/hr
97.5% $^{11}\text{BF}_3$ + 2.5% B_2H_6	+0.3 mg/hr	–5.1 mg/hr
90% $^{11}\text{BF}_3$ + 5% B_2H_6 + 5% H_2	–2.5 mg/hr	–1.1 mg/hr
92% $^{11}\text{BF}_3$ + 3% B_2H_6 + 5% H_2	–0.6 mg/hr	–0.9 mg/hr



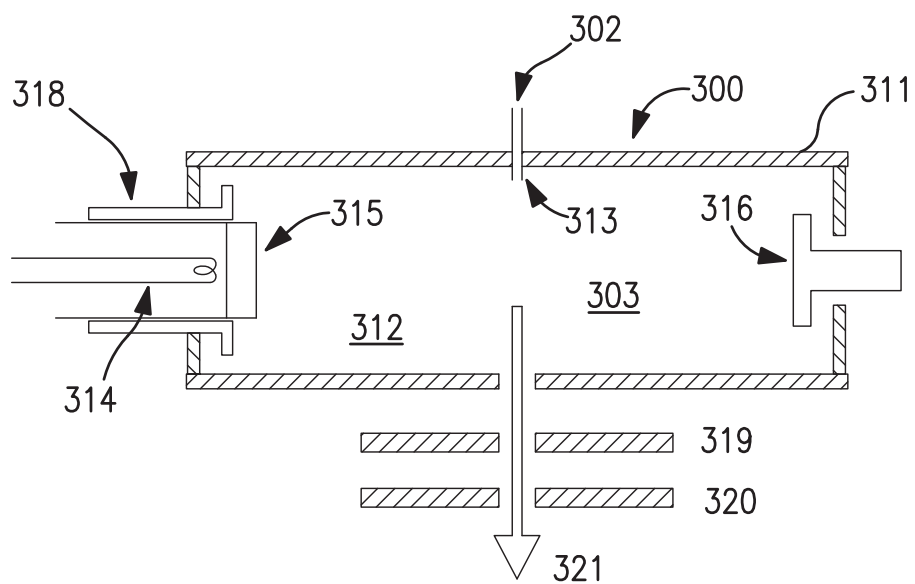
Ionization cross-section for B₂H₆ and BF₃ at different energy levels

FIG. 1



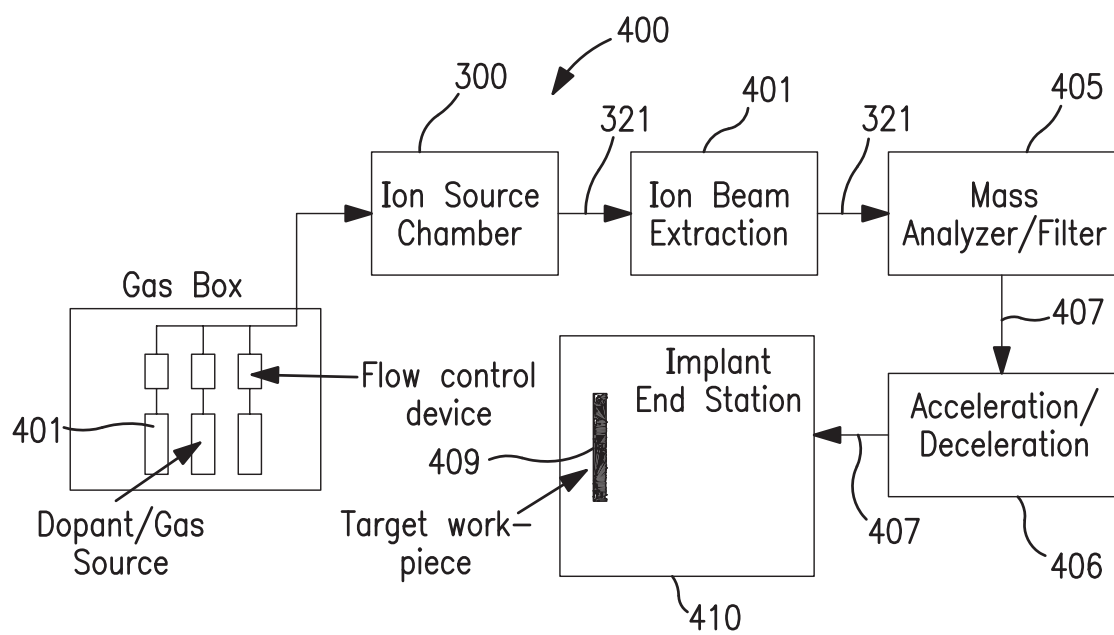
Different delivery schemes

FIG. 2



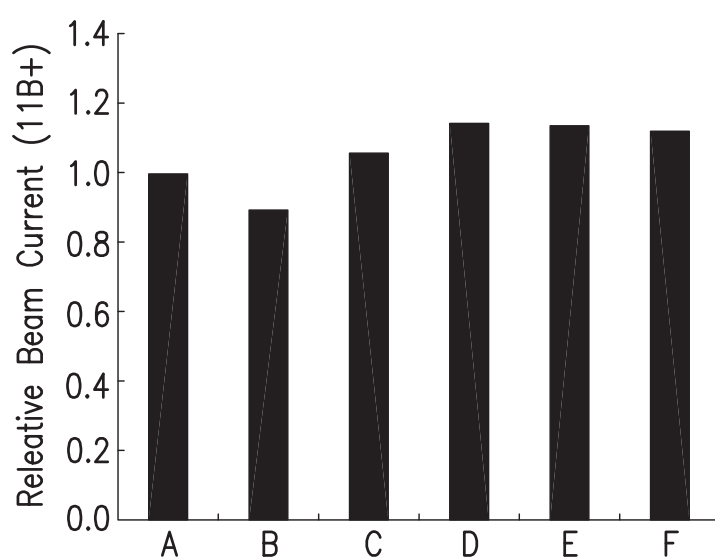
Schematic of an IHC type ion source

FIG. 3



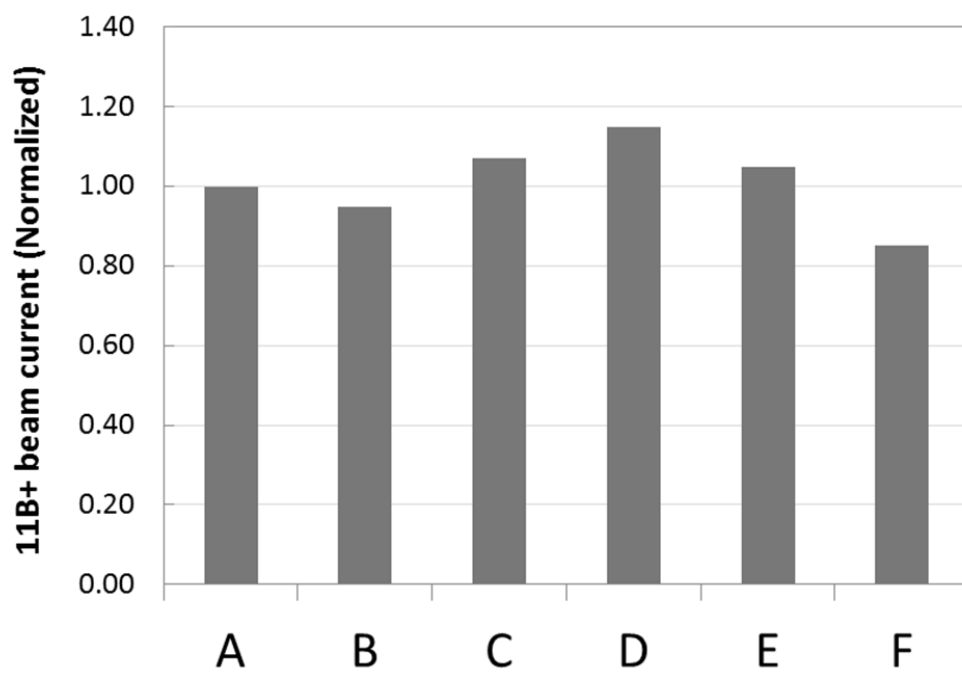
Schematic of an ion implant system

FIG. 4



Relative beam current for different gas mix composition. A: 100% $^{11}\text{BF}_3$; B: 2.25%Xe/12.75% H_2 /85% $^{11}\text{BF}_3$; C: 2.5% B_2H_6 /97.5% BF_3 ; D: 5% B_2H_6 /95% $^{11}\text{BF}_3$; E: 5% B_2H_6 /5% H_2 /90% $^{11}\text{BF}_3$; F: 3% B_2H_6 /5% H_2 92% $^{11}\text{BF}_3$

FIG. 5



A: $^{11}\text{BF}_3$ at 100V; B: $^{11}\text{BF}_3$ at 90V, C: 3%B $_2$ H $_6$ /5%H $_2$ /92% $^{11}\text{BF}_3$ at 100 V; D: 3%B $_2$ H $_6$ /5%H $_2$ /92% $^{11}\text{BF}_3$ at 90V; E: 3%B $_2$ H $_6$ /5%H $_2$ /92% $^{11}\text{BF}_3$ at 110V; F: 10%H $_2$ /90% $^{11}\text{BF}_3$

FIG. 6