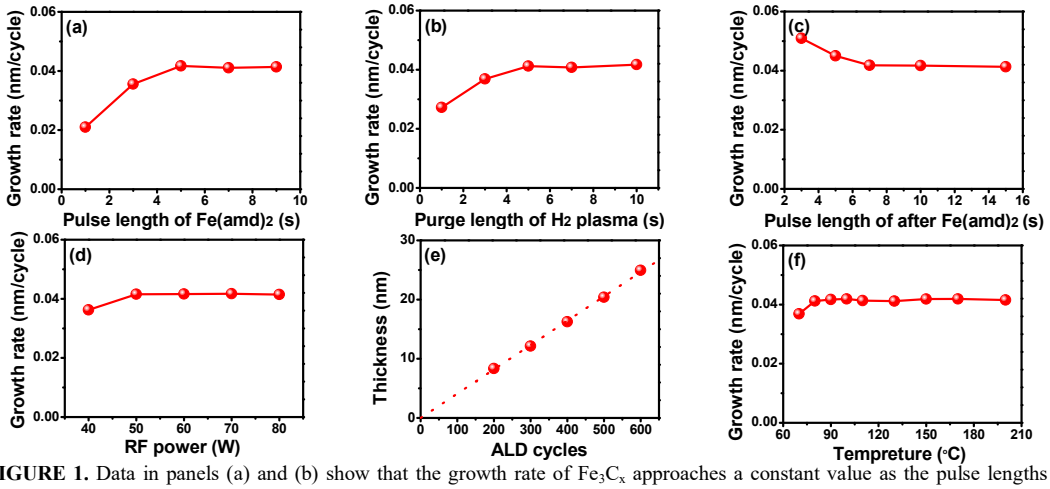

FIGURE 1. Data in panels (a) and (b) show that the growth rate of Fe_3C_x approaches a constant value as the pulse lengths of (a) $Fe(amd)_2$ and (b) H_2 plasma increase, respectively. (c) Growth rate as a function of the purge length after the $Fe(amd)_2$ pulse. (d) Growth rate as afunction of the plasma RF input power. (e) Film thickness as a function of the total ALD cycles. (f) Growth rate as a function of deposition temperature.

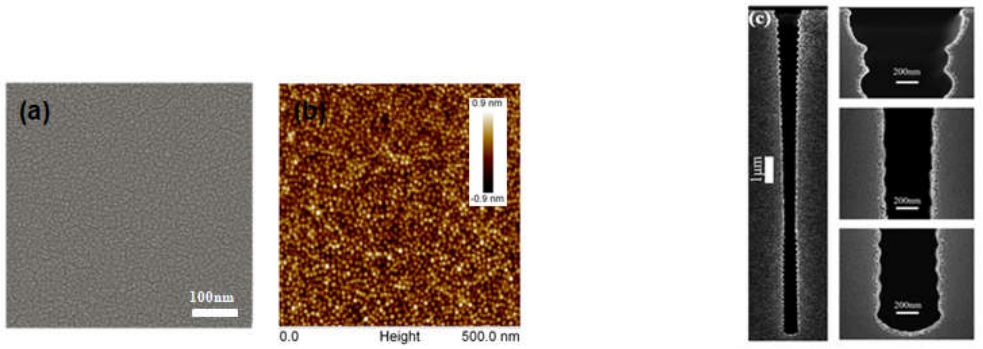

FIGURE 2. Representative (a)SEM and (b) AFM images for a ~12 nm Fe_3C_x film deposited at 90 °C with 300 ALD. (c) Cross-sectional SEM image showing that the Fe_3C_x film was conformally deposited inside a deep narrow trench with a high aspect ratio of 20:1.

TABLE 1. XPS results-elemental composition of the ALD Fe_3C_x films deposited at 90 °C using H_2 plasma pulse lengths of 10s.

Pulse length of H_2 plasma (s)	Fe (at.%)	C (at.%)	N (at.%)	O (at.%)
10	73.57	23.80	0.65	1.98

FIGURE 3. (a) LSV curves of the ALD Fe_3C_X/CC and bare CC. (b) Comparison of the LSV curves of the ALD Fe_3C_x/CC before and after 5000 cycles CV measurement.