

Abstract Submitted
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Deposition rate and etching rate due to neutral radicals and dust particles measured using QCMs together with a dust eliminating filter RYU KATAYAMA, KAZUNORI KOGA, DAISUKE YAMASHITA, KUNIHITO KAMATAKI, HYUNWOONG SEO, Kyushu University, NAHO ITAGAKI, Kyushu University, PRESTO Japan Science and Technology Agency, MASAHARU SHIRATANI, Kyushu University, NAOKO ASHIKAWA, MASAYUKI TOKITANI, SUGURU MASUZAKI, KIYOHICO NISHIMURA, AKIO SAGARA, National Institute for Fusion Science, THE LHD EXPERIMENTAL GROUP TEAM — We have developed an in-situ method for measuring deposition rate of radicals and dust particles using quartz crystal microbalances (QCMs) together with a dust eliminating filter. The QCMs have three channels of quartz crystals. Channel 1 was used to measure total deposition rate due to radicals and dust particles. Channel 2 was covered with a dust eliminating filter. Channel 3 was covered with a stainless-steel plate. Moreover, all QCMs are covered with a grounded stainless steel mesh for suppressing influx of charged particles. The measurements were conducted in the Large Helical Device in the National Institute for Fusion Science, Japan. Although the deposition measurements during the discharges were difficult, we obtained deposition rate and etching rate by comparing the data before and after each discharge. The frequency difference for channel 1 changes from 0.1 Hz (etching) to -0.5 Hz (deposition), while those for channels 2 and 3 are within a range of ± 0.1 Hz and ± 0.05 Hz, respectively. The QCM method gives information on deposition rate and etching rate due to neutral radicals and dust particles.

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