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(19) **United States**(12) **Patent Application Publication**  
**UMEDA et al.**(10) **Pub. No.: US 2024/0213003 A1**(43) **Pub. Date: Jun. 27, 2024**(54) **DIAGNOSIS DEVICE, DIAGNOSIS METHOD,  
PLASMA PROCESSING APPARATUS, AND  
SEMICONDUCTOR DEVICE  
MANUFACTURING SYSTEM**(52) **U.S. Cl.**  
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**KAMAJI, Tokyo (JP)**(21) **Appl. No.: 17/908,306**(22) **PCT Filed: Jul. 13, 2021**(86) **PCT No.: PCT/JP2021/026208**

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A diagnosis device that uses information from state sensors provided in a plasma processing apparatus for plasma processing a specimen to diagnose deterioration states of components configuring the plasma processing apparatus includes an execution unit that computes and calculates deterioration degree of each of the components configuring the plasma processing apparatus on the basis of the information from the state sensors, and an analysis unit that sets a computation condition for computing and calculating the deterioration degree by the execution unit on the basis of the information from the state sensors and calculates a maintenance period of the plasma processing apparatus on the basis of the information of the deterioration degree of each of the components configuring the plasma processing apparatus computed and calculated by the execution unit, and makes it possible to decide deterioration degree computation condition having high robustness for each of the components.

