cleanliness and assists in the planning of future activities.

Definition of fallout rates within a cleanroom during assembly and integration of contamination-sensitive hardware, such as the James Webb Space Telescope, is essential for budgeting purposes. Balancing the activity levels for assembly and test with the particle accumulation rate is paramount. The current approach to predicting particle fallout in a cleanroom assumes a constant air quality based on the rated class of a cleanroom, with adjustments for projected work or exposure times. Actual cleanroom class can also depend on the number of personnel present and the type of activities.

A linear correlation of air quality and normalized particle fallout was determined numerically. An air particle counter (standard cleanroom equipment) can be used to monitor the air quality on a real-time basis and determine the "class" of the cleanroom (per FED-STD-209 or ISO-14644). The correlation function provides an area coverage coefficient per class-hour of exposure. The prediction of particle accumulations provides scheduling inputs for activity levels and cleanroom class requirements.

This work was done by Radford Perry of Goddard Space Flight Center. Further information is contained in a TSP (see page 1).
GSC-16108-1

Enhancement to Non-Contacting Stress Measurement of Blade Vibration Frequency

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A system for turbo machinery blade vibration has been developed that combines time-of-arrival sensors for blade vibration amplitude measurement and radar sensors for vibration frequency and mode identification. The enabling technology for this continuous blade monitoring system is the radar sensor, which provides a continuous time series of blade displacement over a portion of a revolution. This allows the data reduction algorithms to directly calculate the blade vibration frequency and to correctly identify the active modes of vibration.

The work in this project represents a significant enhancement in the mode identification and stress calculation accuracy in non-contacting stress measurement system (NSMS) technology when compared to time-of-arrival measurements alone.

This work was done by Michael Platt and John Jagodnik of Mechanical Solutions for Glenn Research Center. Further information is contained in a TSP (see page 1).

Inquiries concerning rights for the commercial use of this invention should be addressed to NASA Glenn Research Center, Innovative Partnerships Office, Attn: Steven Fedor, Mail Stop 4–8, 21000 Brookpark Road, Cleveland, Ohio 44135. Refer to LEW- 18602-1.