**University of Pittsburgh and FETC
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Cellular deposition is a dynamic phenomenon that may involve both adhesion and detachment, as in thrombosis and thromboembolism. Current techniques for assessing the blood compatibility of opaque biomaterials are limited to endpoint analysis of cellular deposition. To investigate temporal changes in deposition multiple trials with varying duration are generally required.

A fiber optic remote microscope (FORM) has been developed which can measure temporal cellular deposition and detachment in whole blood on opaque biomaterials. These measurements are made in an on-line manner, providing temporal resolution without multiple trials. This measurement system was utilized to assess temporal platelet deposition on a series of adsorbed proteins whose interactions with blood have been well documented. Next the FORM was applied to two opaque biomaterials, polished titanium and polished titanium with a diamond-like coating to assess temporal platelet deposition.

In summary we have demonstrated a novel system for assessing the blood compatibility of opaque biomaterials. This system has the potential to be applied to a variety of surfaces including interior surfaces of blood-contacting medical devices.