

University of Houston - Biomedical Engineering Seminar

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SEC 206

**Functional in Vivo Optoacoustic Imaging Unravels
Effects of Prenatal Alcohol Use on Fetal Brain
Vasculature and Cardiac Function**



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Abstract

Prenatal alcohol exposure adversely impacts fetal development and causes anatomical, behavioral, and neurocognitive disorders. It is well recognized that prenatal alcohol exposure, especially during late gestation, is associated with detrimental effects on myocardial development and developmental fetal brain vasculatures with implications for the postnatal brain and cardiac functions. However, the immediate impact of prenatal alcohol use on fetal brain and cardiac function is still unclear. To advance the evaluation of the effects of prenatal alcohol exposure on fetal cardiac and brain function, there is a desperate need for a noninvasive in vivo imaging tool capable of imaging in utero with high contrast and adequate spatial resolution. Optoacoustic (OA) imaging is an emerging technique that benefits from combining high acoustic resolution and high optical contrast. Real-time imaging has also been realized in this technique using the ultrasound array detectors with high frame rate volumetric image acquisition. I present some of our recent work looking at the effect of acute prenatal alcohol use on murine embryonic heart rate and brain vasculature using OA tomography.

Biosketch

Maryam Hatami, PhD, is a postdoctoral fellow at the Department of Biomedical Engineering. She has got her PhD in physics in 2012 from the University of Sciences and Research in Iran. Dr. Hatami has over 15 years combined experience working in industry and academia with experience in nonlinear optics, optical and optoacoustic imaging and characterization and basic science research on nanofabrication and characterization. Her research interests include nonlinear optics, optical spectroscopy, biomedical imaging and sensing, image processing and data analysis.