



# Northeastern

**Department of Civil and Environmental Engineering**

***Natural Organic Matter and Disinfection-By Products Formation Potential Characterization***

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**New Jersey Institute of Technology,**  
**Newark, NJ.**

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**12pm-1pm**  
**168 Snell Engineering Center**

**Abstract**

Natural Organic Matter (NOM) in source water was fractionated by chromatographic resin columns into 6 different fractions. Each fraction was subjected to chlorine to determine its disinfection by-product (DBP) formation potential. Research results showed that all NOM fractions contribute to DBPs, each having a different reactivity level. Depending on the type of DBPs under consideration, the unbundling of DBP precursors enables one to identify the one fraction that is most responsible for the formation of that particular DBP. Rapid characterization of problematic fractions can be determined by the "Spectral Fluorescent Signature" (SFS) technique for temporal and spatial applications in source water protection and water treatment optimization.

**Bio**

Taha F. Marhaba is a professor and chair of the Department of Civil and Environmental Engineering and director of the New Jersey Applied Water Research Center at the New Jersey Institute of Technology. His expertise is water quality engineering, with his most notable contribution to the field being what is known as the spectral fluorescent signatures (SFS) technique, which is used to rapidly identify organic compounds in water. Prof. Marhaba holds a PhD and MS in environmental engineering and a BS in civil engineering, all from Rutgers University in New Brunswick, New Jersey. Prior to joining NJIT in 1995, he was associated with environmental consulting at Stone & Webster Engineering Corp. He received the 2008 NJIT Excellence in Teaching Award for undergraduate instruction, lower division. He also received the 2010 Distinguished Engineer Award from the Rutgers Engineering Society, the alumni association of the Rutgers School of Engineering.



**Taha Marhaba, PhD, PE**  
**Professor and Chair**  
**Civil and Environmental Engineering**  
**New Jersey Institute of Technology**



Education

- **PhD, Environmental Engineering, *RUTGERS UNIVERSITY***
- **MS, Environmental Engineering, *RUTGERS UNIVERSITY***
- **BS, Civil Engineering, *RUTGERS UNIVERSITY***



Research Interests

- **Pollution detection**
- **Water treatment**
- **Drinking water**
- **Natural organic matter**
- **Droughts**
- **Sustainable systems**

Selected Honors and Awards

- **Director of the New Jersey Applied Water Research Center**
- **Distinguished Engineer Award (2010) from the Rutgers Engineering Society**
- **Excellence in Teaching Award (2008) for undergraduate instruction, lower division**