

1. **Name:** Halim Ayan
2. **Education – degrees, discipline, institution, year:**  
Ph.D. in Mechanical Engineering & Mechanics, Drexel University - 2009  
B.S. in Mechanical Engineering, Summa Cum Laude, Ege University – 2001
3. **Academic Experience - 10 years**  
Associate Professor, Dept of Bioengineering, University of Toledo, 2018 – present.  
Associate Professor, MIME Dept, University of Toledo, 2018 – present.  
Assistant Professor, Dept of Bioengineering, University of Toledo, 2012 – 2018.  
Assistant Professor, MIME Dept, University of Toledo, 2012 – 2018.  
Assistant Professor, Dept of Engineering & Physics, Murray State University, 2009 – 2012  
Assistant Professor, Dept of Mechanical Engineering, University of Kentucky, 2009 – 2012
4. **Non-academic experience:**  
Bechtel-ENKA Joint Venture, Gas Turbines Lead Supervisor, Tengiz, Kazakhstan 2004-2005.  
Bechtel-ENKA Joint Venture, Gas Turbines Supervisor, Rotterdam, The Netherlands, 2003-2003.  
Bechtel-ENKA Joint Venture, Gas Turbines Junior Supervisor, Izmir, Turkey, 2001-2002.
5. **Certifications or professional registrations:** N/A
6. **Current membership in professional organizations:**  
Founding Member of the International Society for Biofabrication (ISBF)  
Founding Member of the International Society of Plasma Medicine (ISPM)
7. **Honors and Awards:**  
Murray State University Alumni Association's Emerging Scholar Award – Finalist, 2011 and 2012  
National Science Foundation Summer Institute Fellowship on Energy Manufacturing, 2011  
Selected in “Journal of Physics D Highlights of 2009 collection” by Journal of Physics D: Applied Physics;  
with J. Phys. D: Appl. Phys., 42 (2009) 125202, 2010  
Drexel University Graduate Student Teaching Award – Winner, 2009  
Drexel University Graduate Student Research Award – Highly Commended, 2009  
Mimics Innovation Awards - 2nd place, 2009  
Laurence A. Baiada Center for Entrepreneurship Business Plan Competition; 2nd Place, 2008  
Drexel Outreach Programs Service Award, 2008  
Laurence A. Baiada Center for Entrepreneurship in Technology, Business Concept Competition Winner,  
2008  
Drexel University Graduate Student Teaching Award – Nominated, 2008  
Gold Medal for Graduating Ranked 1st in class ‘01, 2001  
Technical Drawing Success Certificate (undergraduate, educational), 1998
8. **Service Activities (most important within and outside of the institution)**  
Reviewer for the IEEE Transactions on Plasma Science, Plasma Sources Science and Technology  
journal, Journal of Physics D: Applied Physics, Biofabrication, Plasma Medicine, New Journal of  
Physics, Surface and Interface Analysis, Scientific Reports, Oxidative Medicine and Cellular Longevity.  
NSF Proposal Review Panelist.
9. **Most important Publications/Presentations: *Refereed Journal Articles/Patents – last 5 years:***  
Mathematical modelling of the effects of plasma treatment on the diffusivity of biofilm, T

- Gupta, S Karki, R Fournier, **H Ayan**, Applied Sciences 8 (10), 1729, 2018
- Antimicrobial Effectiveness of Regular Dielectric- Barrier Discharge (DBD) and Jet DBD on the Viability of Pseudomonas aeruginosa, TT Gupta, JS Matson, **H Ayan**, IEEE Transactions on Radiation and Plasma Medical Sciences 2 (1), 68-76 2018
- Equiaxial strain modulates adipose-derived stem cell differentiation within 3D biphasic scaffolds towards annulus fibrosus, M Elsaadany, K Winters, S Adams, A Stasuk, **H Ayan**, E Yildirim-Ayan, Scientific reports 7 (1), 12868 2017
- Investigation of non-thermal plasma effects on lung cancer cells within 3D collagen matrices, SB Karki, TT Gupta, E Yildirim-Ayan, KM Eisenmann, **H Ayan**, Journal of Physics D: Applied Physics 50 (31), 315401 2017
- Sterilization of biofilm on a titanium surface using a combination of nonthermal plasma and chlorhexidine digluconate, TT Gupta, SB Karki, JS Matson, DJ Gehling, **H Ayan**, BioMed research international 2017
- Miniature dielectric barrier discharge nonthermal plasma induces apoptosis in lung cancer cells and inhibits cell migration, SB Karki, E Yildirim-Ayan, KM Eisenmann, **H Ayan**, BioMed research international 2017
- Localized surface functionalization of polycaprolactone with atmospheric-pressure microplasma jet, C Wang, Q Hamid, J Snyder, **H Ayan**, W Sun, Biomedical Physics & Engineering Express 1 (2), 025002 2015
- Exogenous nitric oxide (NO) generated by NO-plasma treatment modulates osteoprogenitor cells early differentiation, M Elsaadany, G Subramanian, **H Ayan**, E Yildirim-Ayan, Journal of Physics D: Applied Physics 48 (34), 345401 2015
- Bactericidal efficacy of dielectric barrier discharge plasma on methicillin-resistant Staphylococcus aureus and Escherichia coli in planktonic phase and colonies in vitro, N Sanaei, **H Ayan**, Plasma Medicine 5 (1) 2015

#### **10. Professional development activities in the last five years:**

*Attended and/or presented at professional conferences:*

- Sterilization of methicillin-resistant staphylococcus aureus with dielectric barrier discharge, **H Ayan**, N Sanaei, 2015 IEEE International Conference on Plasma Sciences (ICOPS), 1-1
- "Effect of Atmospheric Pressure plasma for lung cancer cells viability", Surya B. Karki, Halim Ayan, 2015 Midwest BME Conf., Nov 6, 2015, Akron OH
- "The effect of nonthermal atmospheric pressure plasma for the lung cancer cells viability". Surya Karki, Halim Ayan; BMES 2015 Annual Meeting, 7-10, 2015 Tampa, Florida
  - "Antimicrobial Efficacy of Non-thermal Dielectric Barrier Discharge Plasma on Pseudomonas Aeruginosa Biofilm". Tripti Thapa, Halim Ayan; BMES 2015 Annual Meeting, October 7-10, 2015 Tampa, Florida
  - Development of a maskless microplasma surface patterning system for biologics printing; C Wang, Q Hamid, J Snyder, **H Ayan**, W Sun; 2012 38th Annual Northeast Bioengineering Conference (NEBEC), 111-112