

# Doç. Dr. Sevda Avcı

## Eğitim:

**Doktora** : Fizik Bölümü, Northern Illinois University, DeKalb IL, 2003-2010.

**Lisans** : Fizik Öğretmenliği, Eğitim Fakültesi, Boğaziçi Üniversitesi, İstanbul, 1995-2000

## Araştırma Alanları:

Korele Li-iyon piller, X-Ray ve nötron difraksiyonu, elektronik iletkenlik, süperiletkenlik, manyetizma, geçiş metal oksitleri, manyetik ve atomik yapı

## Dersler:

**Lisans**: Genel Fizik, Mekanik, Elektrik ve Manyetizma, Malzeme Bilimi ve Mühendisliği, kristalografi, katıhal fiziği

**Lisansüstü**: Katıhal Fiziği, Nanobilim ve Nanoteknolojiye Giriş, Malzeme Biliminin Temelleri

## Yayınlar:

### Makaleler:

**Turkoglu A.**, Kenobi, OW (2006). Plüton Lazer Sektörü Rekabetçilik Analizi, Plüton Ticaret Üniversitesi Jedi Bilimler Dergisi, Bahar, Yıl:4 Sayı:19, s. 49-66.

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2. A Guler, C Boyraz, **S Avcı**, L Arda, M Özdemir, Y Oner (2019). Electronic, transport, and magnetic properties of (Ca,Ba)LaFePtAs<sub>2</sub> compounds, International Journal of Modern Physics B 33 (04), 1950008.
3. S Altin, A Bayri, S Demirel, E Oz, E Altin, **S Avcı** (2018). Structural, magnetic, electrical, and electrochemical properties of Sr–Co–Ru–O: A hybrid-capacitor application, Journal of the American Ceramic Society 101 (10), 4572-4581.
4. E Oz, S Demirel, S Altin, E Altin, O Baglayan, A Bayri, **S Avcı** (2018) Fabrication of Ca-Mn-Nb-O compounds and their structural, electrical, magnetic and thermoelectric properties, Materials Research Express 5 (3), 036304.
5. S Altin, E Oz, E Altin, S Demirel, A Bayri, **S Avcı** (2018). Investigations of the capacity fading mechanism of Na 0.44 MnO<sub>2</sub> via ex situ XAS and magnetization measurements, Dalton Transactions 47, 17102-17108.
6. S. Demirel, E. Oz, S. Altin, A Bayri, O Baglayan, E Altin. **S. Avcı** (2017). Structural, magnetic, electrical, and electrochemical properties of SrCoO<sub>2.5</sub>, Sr<sub>9</sub>Co<sub>2</sub>Mn<sub>5</sub>O<sub>21</sub> and SrMnO<sub>3</sub> compounds, Ceramics International 43, 14818.

7. E. Oz, S. Demirel, S. Altin, E. Altin, A. Bayri and **S. Avci** (2017). Thermally induced spin state transition in LiCoO<sub>2</sub> and its effects on battery performance, *Electrochimica Acta* 248, 449.
8. E. Oz, S. Demirel, S. Altin, A. Bayri and **S. Avci** (2016). Synthesis of ultra-thin nanobristles of Na-Mn-O compounds and their magnetic and structural properties' *Ceramics International*, 42, 17059.
9. S. Demirel, E. Oz, S. Altin, A. Bayri, E. Altin and **S. Avci** (2016). Enhancement of battery performance of LiMn<sub>2</sub>O<sub>4</sub>: correlations between electrochemical and magnetic properties' *RSC Adv.* 6, 43823.
10. E. Oz, S. Altin, S. Demirel, A. Bayri, E. Altin, O. Baglayan, **S. Avci** (2016). Electrochemical effects and magnetic properties of B substituted LiCoO<sub>2</sub>: Improving Li-battery performance, *Journal of Alloys and Compounds*, 657, 835.
11. J. M. Allred, **S. Avci**, D. Y. Chung, H. Claus, D. D. Khalyavin, P. Manuel, K. M. Taddei, M. G. Kanatzidis, S. Rosenkranz, R. Osborn, and O. Chmaissem (2015). Tetragonal magnetic phase in Ba<sub>1-x</sub>K<sub>x</sub>Fe<sub>2</sub>As<sub>2</sub> from x-ray and neutron diffraction' *Phys. Rev. B* 92, 094515.
12. S. Demirel, E. Oz, E. Altin, S. Altin, A. Bayri, P. Kaya, S. Turan, **S. Avci** (2015). Growth mechanism and magnetic and electrochemical properties of Na<sub>0.44</sub>MnO<sub>2</sub> nanorods as cathode material for Na-ion batteries', *Materials Characterization*, 105, 104.
13. **S. Avci**, O. Chmaissem, J.M. Allred, S. Rosenkranz, I. Eremin, A.V. Chubukov, D.E. Bugaris, D.Y. Chung, M.G. Kanatzidis, J.-P. Castellan, J.A. Schlueter, H. Claus, D.D. Khalyavin, P. Manuel, A. Daoud-Aladine, R. Osborn (2014). Magnetically driven suppression of nematic order in an iron-based superconductor, *Nature Communications*, 5, 3845.
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15. S. Demirel, **S. Avci**, E. Altin, S. Altin, M. E. Yakinci (2013). Enhanced thermoelectric properties induced by chemical pressure in Ca<sub>3</sub>Co<sub>4</sub>O<sub>9</sub>, *Ceramics International*, 40, 5217.
16. **S. Avci**, O. Chmaissem, H. Zheng, A. Huq, P. Manuel, and J. F. Mitchell (2013). Oxygen Stoichiometry in the Geometrically Frustrated Kagomé System YBaCo<sub>4</sub>O<sub>7+δ</sub>: Impact on Phase Behavior and Magnetism' *Chemistry of Materials* 25, 4188.
17. **S. Avci**, J. M. Allred, O. Chmaissem, D. Y. Chung, S. Rosenkranz, J. A. Schlueter, H. Claus, A. Daoud-Aladine, D. D. Khalyavin, P. Manuel, A. Llobet, M. R. Suchomel, M. G. Kanatzidis, and R. Osborn (2013). Structural, magnetic, and superconducting properties of Ba<sub>1-x</sub>NaxFe<sub>2</sub>As<sub>2</sub>, *Physical Review B* 88, 094510.
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19. S. Kolesnik, K. Świerczek, O. Chmaissem, **S. Avci**, J. P. Hodges, M. Avdeev, and B. Dabrowski (2012). Enhancement of Curie temperature in NdBaCo<sub>2</sub>O<sub>5.5</sub> by A-site Ca substitution, *Physical Review B* 86, 064434.

20. **S. Avci**, O. Chmaissem, D. Y. Chung, S. Rosenkranz, E. A. Goremychkin, J. P. Castellán, I. S. Todorov, J. A. Schlueter, H. Claus, A. Daoud-Aladine, D. D. Khalyavin, M. G. Kanatzidis, and R. Osborn (2012). Phase diagram of  $Ba_{1-x}K_xFe_2As_2$ , Physical Review B 85, 184507.
21. **S. Avci**, O. Chmaissem, H. Zheng, A. Huq, D. D. Khalyavin, P. W. Stephens, M. R. Suchomel, P. Manuel, and J. F. Mitchell (2012). Kinetic control of structural and magnetic states in  $LuBaCo_4O_7$ , Physical Review B 85, 094414 (2012). Published as Editor's Suggestion.
22. **S. Avci**, O. Chmaissem, E. A. Goremychkin, S. Rosenkranz, J. P. Castellán, D. Y. Chung, I. S. Todorov, J. A. Schlueter, H. Claus, M. G. Kanatzidis, A. Daoud-Aladine, D. Khalyavin, R. Osborn (2011). Magnetoelastic Coupling in the Phase Diagram of  $Ba_{1-x}K_xFe_2As_2$  as Seen via Neutron Diffraction, Physical Review B 83, 172503.
23. **S. Avci**, Z. L. Xiao, J. Hua, A. Imre, R. Divan, J. Pearson, U. Welp, W. K. Kwok, and G. W. Crabtree (2010). Matching Effect and Dynamic Phases of Vortex Matter in  $Bi_2Sr_2CaCu_2O_8$  Nanoribbon With a Periodic Array of Holes, Applied Physics Letters 97, 042511.
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#### **Yüksek Lisans ve Bitirme Tezleri:**

Ahmet Gül (2018) RF (Radyo Frekans) Enerji Soğurumada Yeni Etken Malzeme: Grafen, İstanbul Medeniyet Üniversitesi, Fen Bilimleri Enstitüsü Nanobilim ve Nanomühendislik Anabilim Dalı

Deran Turan (2015). Bor katkılı  $LiMn_2O_4$  spinel katot malzemelerinin fiziksel özelliklerinin ve pil performanslarının incelenmesi, Afyon Kocatepe Üniversitesi, Fen Bilimleri Enstitüsü, Malzeme Bilimi ve Mühendisliği Anabilim Dalı

#### **Projeler ve Girişimler:**

1. **Yürütücü**-Na insertal/removal mechanism of  $Na_2Ti_3O_7$  nanorods in Na-ion battery applications, NFFA-Europe (Nanoscience Foundries and Fine Analysis) Project, Project ID 472 (Devam ediyor)
2. **Yürütücü**-Ex-situ investigation of structural and magnetic properties of  $Na_{0.44}MnO_2$  nanorods as cathode material for Na-ion batteries, NFFA-Europe (Nanoscience Foundries and Fine Analysis) Project, Project ID 134 (Tamamlandı)
3. **Yürütücü**-Bor katkılı yeni teknoloji Na-ion pillerin tasarlanması ve performanslarının incelenmesi- ARDEB 1003- No:112M487 (Tamamlandı)
4. **Yürütücü**- $Na_{0.44}MnO_2$  Katot Malzemesinin İyonik İletkenlik ve Yüksek Sıcaklık

Yapısal Özelliklerinin İncelenmesi- BAP Projesi-No:14.MUH.03 (Tamamlandı)

5. **Yürütücü-** Ba<sub>1-x</sub>A<sub>x</sub>Fe<sub>2</sub>As<sub>2</sub>(A=Na,K)Serisinin Süperiletkenlik, Manyetik ve Yapısal Özellikleri- BAP Projesi- No:14.HIZ.DES.14 (Tamamlandı)
6. **Araştırmacı-**Neutron and X-ray Scattering, Proje No: DE-AC02-06CH1135 (ABD Enerji Bakanlığı)
7. **Araştırmacı-**Emerging Materials, Proje no:Field Work Proposal 5891600-105 (ABD Enerji Bakanlığı)
8. **Bursiyer-**Vortices in Shaped superconducting mesocrystals, Proje No: 0605748 (National Science Foundation, ABD)
9. **Bursiyer-**Correlated Phenomena in Atomically Arranged Transition Metal Perovskites- Proje No:0302617 (National Science Foundation, ABD)