

EK-3

ÖZGEÇMİŞ

1. **Adı Soyadı** : Ümit DEMİRBAŞ
2. **Doğum Tarihi** : 1980
3. **Unvanı** : Prof. Dr.
4. **Öğrenim Durumu** : Doktora
5. **Çalıştığı Kurum** : Antalya Bilim Üniversitesi



Derece	Alan	Üniversite	Yıl
Lisans	Fizik	Koç Üniversitesi	2004
Lisans	Elektrik ve Elektronik Mühendisliği	Koç Üniversitesi (çift anadal)	2004
Y. Lisans	Malzeme Bilimleri ve Mühendisliği	Koç Üniversitesi	2006
Doktora	Elektrik ve Elektronik Mühendisliği	Massachusetts Institute of Technology	2010

5. Akademik Unvanlar

- Yardımcı Doçentlik Tarihi : 1 Ocak 2012
Doçentlik Tarihi : 20 Mart 2015
Profesörlük Tarihi : 14 Eylül 2020

6. Yönetilen Yüksek Lisans ve Doktora Tezleri

- 6.1. Yüksek Lisans Tezleri
6.2. Doktora Tezleri

7. Yayınlar

7.1. Uluslararası hakemli dergilerde yayınlanan makaleler (SCI,SSCI,Arts and Humanities)

1. **U. Demirbaş***, J. Thesinga, M. Kellert, F. X. Kärtner and M. Pergament "Detailed investigation of absorption, emission and gain in Yb:YLF in the 78-300 K range ", Optical Materials Express, (2021, in press).
2. **U. Demirbaş***, J. Thesinga, H. Cankaya, M. Kellert, M. Pergament and F. X. Kärtner "Temperature and doping dependence of fluorescence lifetime in Yb:YLF (role of impurities) ", Optical Materials, (2021, in press).
3. **U. Demirbaş***, J. Thesinga, M. Kellert, F. X. Kärtner and M. Pergament "Comparison of different in vivo optical temperature probing methods for Yb:YLF crystal at cryogenic temperatures ", Optical Materials Express, (2020, in press).
4. **U. Demirbaş***, H. Cankaya, M. Pergament, and F. X. Kärtner, "Power and energy scaling potential of cryogenic Yb:YLF regenerative amplifiers in rod geometry", JOSA-B, 37 (6), 1865-1877, (2020).
5. **U. Demirbaş***, J. Thesinga, H. Cankaya, M. Kellert, F. X. Kärtner and M. Pergament, "High-power passively mode-locked cryogenic Yb:YLF laser", Optics Letters, 45 (7), 2050-2053, (2020).
6. **U. Demirbaş***, and F. X. Kärtner, "Alexandrite: an attractive thin-disk laser material alternative to Yb:YAG?", JOSA-B, 37 (2), 459-472, (2020).
7. **U. Demirbaş***, H. Cankaya, Yi Hua, J. Thesinga, M. Pergament, and F. X. Kärtner "20-mJ, sub-ps pulses at up to 70 W average power from a cryogenic Yb:YLF regenerative amplifier", Optics Express, 28 (2), 2466-2479, (2020).
8. Y. Liu, **U. Demirbaş**, M. Kellert, J. Thesinga, H. Cankaya, Yi Hua, L. E. Zapata, M. Pergament, M. Hemmer and F. X. Kärtner, " An 8-pass Yb:YLF cryogenic amplifier with 305-mJ energy ", OSA Continuum, 3 (10), 2722-2729, (2020).
 - o Editor's pick
9. **U. Demirbaş***, H. Cankaya, J. Thesinga, F. X. Kärtner, and M. Pergament, "Efficient, diode-pumped, high-power (>300W) cryogenic Yb:YLF laser with broad-tunability (995-1020.5 nm): investigation of E//a-axis for lasing", Optics Express, 27, (25), 36562-36579, (2019).
10. **U. Demirbaş***, "Cr:Colquirite Lasers: Current Status and Challenges for Further Progress", Progress in Quantum Electronics, 68, 100227, (2019).
11. **U. Demirbaş***, A. Sennaroglu, and F. X. Kärtner, "Temperature dependence of Alexandrite effective emission cross section and small signal gain over the 25-450 °C range", Optical Material Express, 9 (8), 3352-3370, (2019).
12. E. Bayatlı, B. Sumpf, G. Erbert, and **U. Demirbaş***, "Efficient Tm:YAG and Tm:LuAG lasers pumped by 681-nm tapered diodes", Applied Optics, 58 (11), 2973-2989, (2019).
13. H. Cankaya, **U. Demirbaş**, M. Pergament, M. Hemmer, Yi Hua, L. E. Zapata, and F. X. Kärtner, "190-mJ cryogenically-cooled Yb:YLF amplifier system at 1019 nm", OSA Continuum, 2, (12), 3547-3553, (2019).
14. G. Tanisali, I. Baylam, M. Tasci, J. E. Bae, F. Rotermund, **U. Demirbaş**, and A. Sennaroglu, "21-fs Cr:LiSAF laser mode-locked with a single-walled carbon nanotube saturable absorber", Optics Letters, 44 (19), 4662-4665, (2019).

15. **U. Demirbas***, "Power scaling potential of diode-pumped continuous-wave Cr:LiSAF and Cr:LiCAF lasers in thin-disk geometry", *Applied Optics*, 57 (35), 10207-10217 (2018).
 - Editor's pick
16. **U. Demirbas***, "Optimized birefringent filter designs for multi-color operation of Nd-based lasers: Nd:YAG example", *JOSA B*, 35 (12), 2994-3003 (2018).
17. E. Beyatli and, **U. Demirbas***, "Widely-tunable dual-wavelength operation of Tm:YLF, Tm:LuAG and Tm:YAG lasers using off-surface optic axis birefringent filters", *Applied Optics*, 57 (23), 6679-6686 (2018).
18. C. Cihan, C. Kocabas, **U. Demirbas** and A. Sennaroglu "Graphene mode-locked femtosecond Alexandrite laser", *Optics Letters*, 43 (16), 3969-3972 (2018).
19. C. Cihan, A. Muti, I. Baylam, A. Kocabas, **U. Demirbas** and A. Sennaroglu "70 femtosecond Kerr-lens mode-locked multipass-cavity Alexandrite laser", *Optics Letters*, 43 (6), 1315-1318 (2018).
20. **U. Demirbas***, "Off-surface optic axis birefringent filters for smooth tuning of broadband lasers", *Applied Optics*, 56 (28), 7815-7825 (2017).
21. **U. Demirbas***, J. Wang, G. S. Petrich, S. Nabanja, J. R. Birge, L. A. Kolodziejski, F. X. Kaertner, and J. G. Fujimoto, "100-nm Tunable Femtosecond Cr:LiSAF Laser Mode-Locked with a Broadband Saturable Bragg-Reflector", *Applied Optics*, 56 (13), 3812-3816 (2017).
22. **U. Demirbas***, R. Uecker, J.G. Fujimoto, and A. Leitenstorfer "Multicolor Lasers Using Birefringent Filters: Experimental Demonstration with Cr:Nd:GSGG and Cr:LiSAF", *Optics Express*, 25 (3), 2594-2607 (2017).
23. T. Yerebakan, **U. Demirbas***, S. Eggert, R. Bertram, P. Reiche and A. Leitenstorfer "Red diode pumped Cr:Nd:GSGG laser: two-color mode-locked operation", *JOSA B*, 34 (5), 1023-1032 (2017).
24. F. Canbaz, N. Kakenov, C. Kocabas, **U. Demirbas** and A. Sennaroglu "Generation of Sub-20-fs Pulses from a Graphene Mode-Locked Laser", *Optics Express*, 25 (3), 2834-2839 (2017).
25. **U. Demirbas***, and D.A.E. Acar, "Continuous-wave, quasi-continuous-wave, gain-switched, and femtosecond burst-mode operation of multi-mode diode-pumped Cr:LiSAF lasers", *JOSA B*, 33, 2105-2113 (2016).
26. **U. Demirbas***, and I. Baali, "Power and efficiency scaling of diode pumped Cr:LiSAF lasers: 770-1110 nm tuning range and frequency doubling to 387-463 nm", *Optics Letters*, 40, 4615-4618 (2015).
27. **U. Demirbas***, I. Baali, A. E. Acar and A. Leitenstorfer, "Diode-pumped continuous-wave and femtosecond Cr: LiCAF lasers with high average power in the near infrared, visible and near ultraviolet" *Optics Express*, Vol. 23, Issue 7, pp. 8901-8909 (2015).
28. C. Cihan, E. Beyatli, F. Canbaz, L.J. Chen, B. Sumpf, G. Erbert, A. Leitenstorfer, F. X. Kärtner, A. Sennaroglu and **U. Demirbas***, "Gain-Matched Output Couplers for Efficient Kerr-Lens Mode-Locking of Low-Cost Cr:LiSAF Lasers", *IEEE JSTQE*, Vol. 21, Issue 1, pp. 1100712 (2015).
29. F. Canbaz, N. Kakenov, C. Kocabas, **U. Demirbas**, and A. Sennaroglu, "Graphene mode-locked Cr:LiSAF laser at 850 nm", *Optics Letters*, 40, 4110-4113, (2015).
30. I. Yorulmaz, E. Beyatli, A. Kurt, A. Sennaroglu and **U. Demirbas***, "Efficient and low-threshold Alexandrite laser pumped by a single-mode diode", *Optical Materials Express*, 4, 776-789, (2014).
31. **U. Demirbas***, R. Uecker, D. Klimm, B. Sumpf, and G. Erbert, "Intra-cavity Frequency-Doubled Cr:LiCAF Laser with 265 mW Continuous-Wave Blue (395-405 nm) Output", *Optics Communications*, 320, 38-42 (2014).
32. F. Canbaz, E. Beyatli, L.J. Chen, A. Sennaroglu, F.X. Kärtner, and **U. Demirbas***, "Highly efficient and robust operation of Kerr-lens mode-locked Cr:LiSAF lasers using gain-matched output couplers", *Optics Letters*, 39, 327-330 (2014).
33. E. Bayatli, I. Baali, A. Sennaroglu, B. Sumpf, G. Erbert, A. Leitenstorfer and **U. Demirbas***, "Tapered diode-pumped continuous-wave alexandrite laser", *JOSA B*, 30, 3184-3192 (2013).
34. **U. Demirbas***, "Modelling and optimization of tapered diode pumped Cr:LiCAF regenerative amplifiers", *Optics Communications*, 311, 90-99 (2013).
35. E. Bayatli, A. Sennaroglu, and **U. Demirbas***, "Self-Q-switched Cr:LiCAF laser", *JOSA B*, 30, 914-921, (2013).
36. **U. Demirbas***, R. Uecker, D. Klimm and J. Wang, "Low-cost, broadly-tunable (375-433 nm & 746-887 nm) Cr:LiCAF laser pumped by one single-spatial-mode diode", *Applied Optics*, 51, 8441-8448, (2012).
37. D. Li, **U. Demirbas**, A. Benedick, A. Sennaroglu, J.G. Fujimoto, and F.X. Kärtner, "Attosecond timing jitter pulse train from semiconductor saturable absorber mode-locked Cr:LiSAF lasers", *Optics Express*, 20, 23422-23435, (2012).
 - Presentation of this work at CLEO 2010 by U. Demirbas stimulated a 10 minute chat with John L. Hall, who is one of the winners of Nobel Prize in 2005, for his work in development of laser-based precision spectroscopy, including the optical frequency comb technique.
38. **U. Demirbas***, S. Eggert and A. Leitenstorfer, "Compact and efficient Cr:LiSAF lasers pumped by one single-spatial-mode diode: a minimal cost approach", *JOSA B*, 29, 1894-1903, (2012).
39. S. Kumkar, G. Krauss, M. Wunram, D. Fehrenbacher, **U. Demirbas**, D. Brida, and A. Leitenstorfer, "Femtosecond coherent seeding of a broadband Tm: fiber amplifier by a compact Er: fiber system", *Optics Letters*, 37, 554-556 (2012).

40. **U. Demirbas***, M. Schmalz, B. Sumpf, G. Erbert, G. S. Petrich, L. A. Kolodziejski, J. G. Fujimoto, and F. X. Kärtner, and A. Leitenstorfer, "Femtosecond Cr:LiSAF and Cr:LiCAF lasers pumped by tapered diode lasers", *Optics Express*, 19, 20444-20461, (2011).
41. **U. Demirbas**, Gale S. Petrich, Duo Li, Alphan Sennaroglu, Leslie A. Kolodziejski, Franz X. Kärtner, and James G. Fujimoto, "Femtosecond tuning of Cr:Colquiriite lasers with AIAs/AlGaAs based saturable Bragg reflectors", *JOSA B*, 28, 986-993 (2011).
42. D. Li, **U. Demirbas**, J. R. Birge, G. S. Petrich, L. A. Kolodziejski, A. Sennaroglu, F. X. Kärtner, and J. G. Fujimoto, "Diode-pumped passively mode-locked GHz femtosecond Cr:LiSAF laser with kW peak power", *Optics Letters*, 9, 1446-1448 (2010).
43. **U. Demirbas**, K.H. Hong, J. G. Fujimoto, A. Sennaroglu and F. X. Kärtner, "Low-cost cavity-dumped femtosecond Cr³⁺:LiSAF laser producing >100 nJ pulses", *Optics Letters*, 35, 607-609, (2010).
44. **U. Demirbas**, D. Li, A. Sennaroglu, G. S. Petrich, L. A. Kolodziejski, F. X. Kärtner, and J. G. Fujimoto, "Low-cost, single-mode diode-pumped Cr:Colquiriite lasers", *Optics Express*, 24, 14374-14388 (2009).
 - Highlighted in BioPhotonics, "Multiphoton Microscopy: Ready for Prime Time?", January 2010.
 - IEEE Photonics Society Annual Meeting Best Student Paper Award Finalist at LEOS 2009
45. **U. Demirbas**, A. Sennaroglu, F.X. Kärtner, J.G. Fujimoto, "Generation of 15-nJ pulses from a highly efficient, low-threshold, multipass-cavity Cr³⁺:LiCAF laser", *Optics Letters*, 34, 497-499 (2009).
46. A. Sennaroglu, A. F. Coskun, **U. Demirbas**, "Analysis of solid-state saturable absorbers with temperature-dependent absorption cross sections", *Optical Materials*, 31, 598-603 (2009).
47. **U. Demirbas**, A. Sennaroglu, F. X. Kaertner, J. G. Fujimoto, "Comparative investigation of diode pumping for continuous-wave and mode-locked Cr:LiCAF lasers", *JOSA B*, 26, 64-79 (2009).
48. S. Sakadzic†, **U. Demirbas**†, S. Ruvinskaya, T. R. Mempel, A. Moore, D. Boas, A. Sennaroglu, F. X. Kärtner, and J. G. Fujimoto, "Multiphoton microscopy with a compact, low-cost and highly-efficient Cr:LiCAF laser", *Optics Express*, 16, 20848-20863 (2008).
 - †Contributed equally to this work
49. H. Cankaya, **U. Demirbas**, A. K. Erdamar, A. Sennaroglu "Absorption Saturation analysis of Cr:ZnSe and Fe:ZnSe", *JOSA B*, 25, 794-800 (2008).
50. **U. Demirbas**, A. Sennaroglu, F.X. Kärtner, J.G. Fujimoto, "Highly efficient, low-cost femtosecond Cr³⁺:LiCAF laser pumped by single-mode diodes", *Optics Letters*, 33, 590-592 (2008).
51. **U. Demirbas**, A. Sennaroglu, A. Benedick, A. Siddiqui, F.X. Kärtner, J.G. Fujimoto, "Diode-pumped, high-average power femtosecond Cr³⁺:LiCAF laser", *Optics Letters*, 32, 3309-3311 (2007).
 - Highlighted in Photonics Spectra, "A viable commercial alternative to the Ti:Sapphire laser?", February 2008.
 - OSA New Focus/Bookham Student Award Finalist at CLEO 2008
52. A. Sennaroglu, **U. Demirbas**, Adnan Kurt & Mehmet Somer, "Direct experimental determination of the optimum chromium concentration in continuous-wave Cr:ZnSe Lasers", *IEEE Journal of Selected Topics in Quantum Electronics*, 13, 823-830, (2007).
53. A. Sennaroglu, **U. Demirbas**, Adnan Kurt & Mehmet Somer, "Concentration dependence of fluorescence and lasing efficiency in Cr:ZnSe Lasers", *Optical Materials*, 29, 703-708 (2007).
54. A. Sennaroglu, **U. Demirbas**, Nathalie Vermeulen, Heidi Ottevaere & Hugo Thienpont, "Continuous-wave broadly tunable Cr²⁺:ZnSe laser pumped by a thulium fiber laser", *Optics Communications*, 268, 115-120 (2006).
55. **U. Demirbas** and A. Sennaroglu "Intracavity-pumped Cr²⁺:ZnSe laser with ultrabroad tuning range between 1880 and 3100 nm", *Optics Letters*, 31, 2293-2295 (2006).
56. **U. Demirbas**, A. Kurt, A. Sennaroglu, E. Yilgor & I. Yilgor "Luminescent Nd³⁺ doped silicone-urea copolymers", *Polymer*, 47, 982-990 (2006).
57. **U. Demirbas**, A. Sennaroglu & M. Somer, "Synthesis and characterization of diffusion-doped Cr²⁺:ZnSe and Fe²⁺:ZnSe", *Optical Materials*, 28, 231-240 (2006).
58. A. Sennaroglu, **U. Demirbas**, S. Ozharar & F. Yaman, "Accurate determination of saturation parameters for Cr⁴⁺:Doped solid-state saturable absorbers", *JOSA B*, 23, 241-249 (2006).
59. A. Sennaroglu, I. Kabalci, A. Kurt, **U. Demirbas** & G. Ozen, "Spectroscopic properties of Tm³⁺:TeO₂:PbF₂ glasses", *Journal of Luminescence*, 116, 79-86 (2006).

7.2. Uluslararası diğer hakemli dergilerde yayınlanan makaleler

7.3. Uluslararası bilimsel toplantılarda sunulan ve bildiri kitabında basılan bildiriler

7.4. Yazılan uluslararası kitaplar veya kitaplarda bölümler

7.5. Ulusal hakemli dergilerde yayınlanan makaleler

7.6. Ulusal bilimsel toplantılarda sunulan ve bildiri kitabında basılan bildiriler

7.7. Diğer yayınlar

8. Projeler

Ongoing Projects:

1. "Development and characterization of diode-pumped, highly efficient, high-power low ion doped Cr:LiCAF laser systems", 2020-2023, Antalya International University, TUBİTAK 1001 Project (119E264), PI: Yusuf Ozturk, Position: Consultant, Amount: 699.625-TL.
2. "Development and modelling of 680 nm tapered diode and 1.6 μm high-brightness diode pumped Tm:YAG and Tm:LuAG Lasers " 2020-2023, Recep Tayyip Erdoğan University, TUBİTAK 1001 Project (119F308), PI: Ersen Beyatlı, Position: Researcher, Amount: 689.702 TL.

Past Projects:

3. "AXSIS: Frontiers in attosecond x-ray science: imaging and spectroscopy", EU and DESY funded Project, Position: Scientist, PI: Franz X. Kaertner.
4. "Development of Efficient High Power Cr:LiSAF Laser Systems Pumped by Multimode Diodes", 2014-2017, Antalya International University, TUBİTAK 1001 Project, Position: Principal investigator (PI), Amount: 396,000 TL.
5. "Route to Low-cost, High-energy, and Tunable Femtosecond Laser Technology Based on Diode-Pumped Cr:Colquiriites", 2012-2016, Antalya International University, European Union Marie Curie Career Integration Grant (FP7-PEOPLE-2012-CIG), Position: Principal investigator (PI), Amount: 100,000 Euro.
 - o Also supported with 20,000 Euro from the equipment subsidy program of Alexander von Humboldt Foundation, Germany.
6. "Development of diode-pumped, low-cost and low-noise femtosecond Cr:Colquiriite lasers at GHz repetition rates for optical frequency comb applications", 2013-2015, Antalya International University, TUBİTAK 1001 Project, Position: Principal investigator (PI), Researchers: Alphan Sennaroglu and Adnan Kurt from Koç University, Amount: 304,500 TL.
7. "Diode-pumped, low-cost and efficient optical sources broadly-tunable in the blue (375-425 nm) and near-to-mid-infrared (750-850 nm & 1100-3000 nm)", 2012-2015, Antalya International University, TUBİTAK Career Award, Position: PI, Amount: 264,500 TL.
8. "Development of Continuous-Wave Alexandrite Lasers Pumped by Tapered Diodes", 2013-2014, Antalya International University, TUBİTAK 1002 Project, Position: Principal investigator (PI), Amount: 30,000 TL.
9. "Development of novel low-cost ultrashort pulse laser sources for real world applications", 2010-2012, Konstanz University, Humboldt Foundation Fellowship for postdoctoral research, Position: PI, Host: Prof. Alfred Leitenstorfer, Amount: ~80,000 Euro.
 - o Also supported with 50,000 Euro from Konstanz University Center of Applied Photonics.
10. "Quantum limits to timing jitter in femtosecond lasers", 2010-2012, MIT, National Science Foundation (NSF), P.I. Franz Kärtner, Co P.I. James G. Fujimoto, Position: Researcher, Amount: ~400,000 Dollars.
11. "Ultrafast Optics: Advanced Devices and Ultrafast Phenomena", 2006-2009, MIT, Air Force Office of Scientific Research (AFOSR), P.I. Erich Ippen, Co P.I. Franz Kärtner, Co P.I. James G. Fujimoto, Position: Researcher, Amount: ~1,010,000 Dollars.
12. "Novel approaches for ultrashort pulse generation", 2005-2008, MIT, NSF ECS-0501478, P.I. Franz Kärtner, Co P.I. James G. Fujimoto, Position: Researcher, Amount: ~240,000 Dollars.
13. "Design and development of compact high energy femtosecond oscillators", 2005-2008, Koc University and MIT, TUBİTAK and NSF, MAG 104T247, P.I. James G. Fujimoto, Co P.I. Alphan Sennaroglu, Position: Researcher, Amount: ~24,000 Dollars.
14. "Development of a room-temperature mid-infrared Fe:ZnSe laser", 2005-2006, Koc University, TUBİTAK, TBAG 105T280, P.I. Alphan Sennaroglu, Position: Researcher, Amount: 14,050 TL.
15. "Development of tunable Cr:ZnSe lasers", 2004-2006, Koc University and Vrije University, European 6th Framework Program, P.I. Alphan Sennaroglu, Position: Researcher.
16. "Synthesis and spectroscopic investigation of mid-infrared solid-state laser materials", 2001-2004, Koc University, TUBİTAK, TBAG 101T051, P.I. Alphan Sennaroglu, Position: Researcher, Amount: 35,000 TL.

9. İdari Görevler

10. Bilimsel ve Mesleki Kuruluşlara Üyelikler

11. Ödüller

2019	Bilim Akademisi (Turkish Science Academy) Young Scientist Award (BAGEP)
2018 & 2019	Antalya Bilim University College of Engineering Top Researcher Award
2015	Antalya Bilim University College of Engineering Faculty Achievement Award
2012	European Union Marie Curie Career Integration Grant
2012	Alexander von Humboldt Foundation Return Fellowship
2010	Alexander von Humboldt Foundation Postdoctoral Fellowship (full 2-year Fellowship)
2009	IEEE Photonics Society Graduate Student Fellowship Award
2009	IEEE Photonics Society Annual Meeting Best Student Paper Award Finalist
2008	OSA New Focus/Bookham Student Award Finalist
2004	Top Ranking Student in Physics Graduating Class

12. Son iki yılda verdiğiniz lisans ve lisansüstü düzeydeki dersler için aşağıdaki tabloyu doldurunuz.

Akademik Yıl	Dönem	Dersin Adı	Haftalık Saati		Öğrenci Sayısı
			Teorik	Uygulama	
	Güz	Biomedical Imaging	3		16
	İlkbahar	Solar Energy Engineering	3		26
	Güz	Biomedical Imaging	3		38
	İlkbahar	Solar Energy Engineering	3		22

Not: Açılmışsa, yaz döneminde verilen dersler de tabloya ilave edilecektir.