



Participant Profile

for the
Turkish-German Strategy Workshop 2006
TÜBİTAK Marmara Research Center,
Istanbul- Gebze Turkey
13 – 15 December 2006



International Bureau (IB)
of the Federal Ministry of
Education and Research
(BMBF)

1. Contact details and personal information

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¹ **Role/function** e.g. working group leader, managing director, postdoc, PhD etc.

² **Organisation type** e.g. university, research institution, small and medium enterprise (SME), industry etc.

Working Group:	<input checked="" type="checkbox"/> 1 Material Technologies <input type="checkbox"/> 2 Biotechnology, Genomics and Food <input type="checkbox"/> 3 Energy <input type="checkbox"/> 4 Information and Communication Technologies <input type="checkbox"/> 5 Environmental Protection, Climate Change and Sustainable Development
Areas of activity:	<input checked="" type="checkbox"/> research <input type="checkbox"/> technology development <input type="checkbox"/> demonstration <input type="checkbox"/> training <input type="checkbox"/> dissemination <input type="checkbox"/> other:
Keywords characterising your area of research:	Please choose the appropriate key words (max. 5) from the following list: http://www.cordis.lu/fp6/keywords Applied physics, Biophysics, Optics, Microscopy, Chemical physics
Expertise, technologies and infrastructures available in your institution:	Research activities / expertise: optical microcavities, single molecule imaging, single molecule spectroscopy, single photon sources Methods: Wide-field imaging, TIRF imaging, confocal microscopy, fluorescence spectroscopy, optical tweezers, fluorescence correlation spectroscopy, fluorescence resonance energy transfer Key technologies: High resolution fluorescence microscopy Infrastructures: 25mW 532nm cw laser, 5mW 488nm cw laser, single photon detectors, optical table, 50cm monochromator, sensitive CCD cameras, piezoelectric translation stage. These components are used in a home-built confocal microscope. Key publications: A. Kiraz, A. Kurt, M. A. Dündar, and A. L. Demirel, "Simple largely tunable optical microcavity", Appl. Phys. Lett., Vol. 89, 081118 (2006). A. Kiraz, M. Ehrl, T. Hellerer, Ö. E. Mustecaplıoğlu, C. Bräuchle, A. Zumbusch, "Indistinguishable Photons from a Single Molecule", Phys. Rev. Lett., Vol. 94, 223602 (2005). A. Kiraz, M. Atatüre, and A. İmamoğlu, "Quantum-dot single photon sources: Prospects for applications in linear optics quantum information processing", Phys. Rev. A, Vol. 69, 032305 (2004). A. Kiraz, M. Ehrl, C. Bräuchle, and A. Zumbusch, "Ultralong coherence times in the purely electronic zero-phonon line emission of single molecules", Appl. Phys. Lett., Vol. 85, 920-922 (2004). A. Kiraz, M. Ehrl, C. Bräuchle, and A. Zumbusch, "Low temperature single molecule spectroscopy using vibronic excitation and dispersed fluorescence detection", J. Chem. Phys., Vol. 118, 10821-10824 (2003).



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2. Past and present research collaborations

Are you familiar
with the European
Framework
Programme?

<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
<input type="checkbox"/> with Framework Programme 5	
<input checked="" type="checkbox"/> with Framework Programme 6	
<input type="checkbox"/> with Framework Programme 7	

EU-projects you are
involved in:
Past projects

Programme title / contract number / title / acronym / your function
(coordinator / partner / contractor)

Present projects

Other international
collaborations:

Name(s) and
contact details of
potential partners:

If you would like to suggest the participation of particular partners from the partner country based on existing contacts or collaboration experience, you are welcome to indicate their names and contact details below:
Prof. Dr. Andreas Zumbusch, Physical Chemistry Institute, Konstanz University

3. Presentation at the Workshop

I will give a presentation at the workshop (approx. 10 min.) to present my institution, my expertise, and my collaboration interests. The contents of my presentations is summarised below (max. 1 page).

Applications of high resolution fluorescence microscopy in: Optical spectroscopy, wide-field imaging, and confocal microscopy

A. Kiraz⁽¹⁾, A. Kurt⁽¹⁾, M. A. Dündar⁽¹⁾, S. Doğanay⁽¹⁾, Ş. Turgut⁽¹⁾ ve A. L. Demirel⁽²⁾

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Water droplets take almost spherical shapes on superhydrophobic surfaces. With this geometry they are expected to behave as optical microcavities. In our experiments we have analyzed the fluorescence spectrum obtained from rhodamine B doped water microdroplets. Whispering gallery modes were observed in the spectra.

A custom high resolution fluorescence microscope was built in our laboratory. Polymer thin films highly dilutely doped with rhodamine B were used to calibrate the basic single molecule detection capabilities of the fluorescence microscope. Blinking and photobleaching were observed in the confocal microscopy and wide-field imaging experiments as evidences of single molecule observation.

I agree with the publication of my data on the Workshop website!

PLEASE FILL IN THIS FORM **UNTIL 22 SEPT. 2006** AND RETURN IT TO:

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