



# 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

<b>Name:</b>	Prof. Dr. Reşat Apak	<b>Phone:</b>	90-212-4737028
<b>Role/function<sup>1</sup>:</b>	Head of Research Division (1)	<b>Fax:</b>	90-212-4737180
<b>Institution:</b>	Istanbul University	<b>E-Mail:</b>	<a href="mailto:rapak@istanbul.edu.tr">rapak@istanbul.edu.tr</a>
<b>Department:</b>	Faculty of Enggn., Chemistry Dept.	<b>Website:</b>	<a href="http://www.istanbul.edu.tr">www.istanbul.edu.tr</a> (Search for academic staff, Muhendislik Fakultesi)
<b>Address:</b>	Istanbul University, Enggn. Faculty, Chem.Dept, Avcilar	<b>Organisation type<sup>2</sup>:</b>	2
<b>Postcode and City:</b>	Istanbul 34320 Turkey		

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

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

<b>Working Group:</b>	<input 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 checked="" type="checkbox"/> 5 Environmental Protection, Climate Change and Sustainable Development
<b>Areas of activity:</b>	<input checked="" type="checkbox"/> research <input type="checkbox"/> technology development <input type="checkbox"/> demonstration <input type="checkbox"/> training <input type="checkbox"/> dissemination <input checked="" type="checkbox"/> other: teaching
<b>Keywords characterising your area of research:</b>	<b>Please choose the appropriate key words (max. 5) from the following list:</b> <a href="http://www.cordis.lu/fp6/keywords">http://www.cordis.lu/fp6/keywords</a> Water technology, wastewater treatment, soil remediation, environmental chemistry, analytical chemistry



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**Expertise,  
technologies and  
infrastructures  
available in your  
institution:**

**Research activities / expertise:** Selective sorption, unconventional sorbents, sorption-solidification for waste removal, covalent and electrostatic adsorption, modelling of adsorption of metal ions and metal-humates on unconventional sorbents (red mud, fly ash, clay material, etc.)

**Methods:** Batch and column experiments of metal ion sorption on unconventional sorbents, sorption prediction and correlation, mathematical modeling

**Key technologies:** Adsorption, precipitation, solidification, oxido-reduction, ion exchange

**Infrastructures:** Laboratories complete with wet chemical analysis and atomic-molecular spectroscopy resources (e.g., UV-Vis and AAS), HPLC

**Key publications:** 1) R. Apak, E. Tütem, M. Hügül and J. Hızal, "Heavy metal cation adsorption by unconventional sorbents (red muds and fly ashes)", *Water Res.*, 32 (1998) 430-440. (received 85 citations)  
2) E. Tütem, R. Apak and Ç. F. Ünal, "Adsorptive removal of chlorophenols from water by bituminous shale", *Water Research*, 32 (1998) 2315-2324. (received >40 citations)  
3) R. Apak, K. Güçlü and M. H. Turgut, "Modelling of Copper(II), Cadmium(II) and Lead(II) adsorption on red mud", *J. Colloid Interface Sci.*, 203 (1998) 122-130. (received >30 citations)  
4) R. Apak, J. Hızal and C. Ustaer, "Correlation between the limiting pH of metal ion solubility and total metal concentration", *J. Colloid Interface Sci.*, 211 (1999) 185-192.  
5) K. Güçlü and R. Apak, "Modeling of copper(II), cadmium(II), and lead(II) adsorption on red mud from metal-EDTA mixture solutions", *J. Colloid Interface Sci.*, 228 (2000) 238-252. (received >30 citations)  
6) S. Yalçın, R. Apak, J. Hızal, H. Afşar, "Recovery of copper (II) and chromium (III,VI) from electroplating wastewater by ion exchange", *Sep. Sci. Technol.*, 36 (2001) 2177-2192.  
7) K. Güçlü and R. Apak, "Modeling the adsorption of free and heavy metal complex-bound EDTA onto red mud by a nonelectrostatic surface complexation model", *Journal of Colloid & Interface Science*, 260 (2003) 280-290.  
8) L. Güreli and R. Apak, "Recovery of uranium from ammonium uranyl carbonate (AUC) effluents by combined ion exchange and membrane separation", *Sep. Sci. Technol.*, 39 (2004) 1857-1869.  
9) J. Hızal and R. Apak, "Modeling of copper(II) and lead(II) adsorption on kaolinite-based clay minerals individually and in the presence of humic acid", *J. Colloid Interface Sci.*, 295 (2006) 1-13.  
10) J. Hızal, R. Apak, "Modeling of cadmium(II) adsorption on kaolinite-based clays in the absence and presence of humic acid", *Applied Clay Science* 32 (2006) 232-244.  
11) D. Arda, J. Hızal, R. Apak, Surface complexation modeling of uranyl(II) adsorption onto kaolinite-based clay minerals using FITEQL3.2, *Radiochim. Acta*, 94 (2006) 1-10.



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## 2. Past and present research collaborations

Are you familiar  
with the European  
Framework  
Programme?

Yes

No

- with Framework Programme 5  
 with Framework Programme 6  
 with Framework Programme 7

EU-projects you are  
involved in:

**Past projects**

**Present projects**

**Other international  
collaborations:**

**Name(s) and  
contact details of  
potential partners:**

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

TWAS Project on photooxidation-removal of chlorophenols  
NATO/CCMS Project on Soil & Groundwater Remediation by physico-chemical  
methods (sorption-removal of metals and radionuclides)  
IAEA Project on selective removal of radionuclides on unconventional sorbents  
DPT (Turkish State Planning Organization) Project of antioxidant testing in food  
TUBITAK (Turkish Scientific & Techn. Res. Council) project on antioxidant testing

Editorial Board Member of Talanta, an international journal of analytical  
chemistry, indexed in SCI (2004-2007)

**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:**

- 1) Prof. Dr. Wolfgang H Höll, Deputy Head of Forschungszentrum Karlsruhe,  
Institute for Technical Chem. Section WGT, PO Box 3640, D-76021 Karlsruhe-  
Germany  
2) Prof. Dr. Nalan Kabay, Ege University, Chem. Enggn. Dept. 35100 Izmir-  
Turkey

## 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).

The Division of Analytical Chemistry of the Chemistry Department (head: Professor Apak) of Istanbul University is capable of carrying out independent projects aiming at research and technology development in the fields of environmental chemistry, heavy metal and radionuclide removal from contaminated water by sorption, precipitation, and solidification, photooxidation of chlorinated hydrocarbons and chlorophenols, development of unconventional sorbents for the treatment of water and sludges, and adsorption modeling of heavy metals on unconventional sorbents, and performed a number of important projects in the past on these subjects. The academic staff of my division comprises 4 professors (3 full-time; 1 being part-time), 3 assistant professors, and 4 research associates-assistants, altogether 11 full-time researchers. Additionally there are 10 Ph.D. & M. Sc. students. All the wet analysis resources and instrumental means such as FAAS, GFAAS, UV-Vis spectrophotometer, fluorometer, HPLC (single pump and dual pump) with UV-Vis detection are present. The Division, aside from environmental work, develops novel analytical chemical methods for food analysis (e.g., total antioxidant capacity assays of food extracts and human plasma).

**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:**

**Internationales Buero des BMBF**  
[s.krummacher@fz-juelich.de](mailto:s.krummacher@fz-juelich.de);  
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