이력서

성명: 곽경원

학력

•2003 - 2008 스탠포드 대학 물리화학 박사 (지도교수: Michael D. Fayer)
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•1992 – 1999 고려대학교 화학 학사

경력

•2008/09 – 2010/08 박사 후 연구원 캘리포니아 주립대학 버클리 화학과 (지도교수: Stephen R. Leone)
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연구경력

박사 후 연구원 과정, 캘리포니아 주립대학 버클리 화학과, 생명공학과

• M13 바이러스를 이용한 표면 플라즈몬 공명 센서 개발.
•M13 바이러스를 이용한 포토닉 결정체 (photonic crystal) 개발
• Higher-Harmonic Generation 을 이용한 Attosecond soft X-ray pulse 생성 및 attosecond 전자 동역학 측정
•응집상에서 전자 동역학의 실시간 관찰을 위한 순간 반사율변화 측정 장치의 개발.
• 서브 나노 크기의 금속 클러스터의 생성및 광화학 반응을 X-선 분광학으로 연구.

박사 과정, 스탠포드 대학 화학과

• 이차원 분광학을 이용한 용액상에서의 화학교환 반응 연구를 위한 실험과 이론 개발.
• 최초로 피코초에서 일어나는 수소결합의 생성 분리 반응을 실시간으로 측정.
• 탄소와 탄소사이의 일차결합주위의 회전운동을 최초로 실시간으로 측정하여 연구.
• 상온에서 피코초 시간대에서 일어나는 단백질의 구조 변화를 최초로 관측.
• 이차원 분광학에서 스펙트럼 분산 동역학 연구를 쉽고 간단하게 하는 새로운 이론적 방법 개발.
• 메틸 그룹을 진동 탐침으로 이용한 이차원 분광학 연구.

석사과정 고려대학교

• 이차원 분광학에서 두 탐침 그룹사이의 거리와 교차 봉우리 간의 관계를 이론적으로 증명.
• DOVE 분광학의 해석을 위한 이론적 체계 확립 (U. of Wisconsin-Madison 의 John Wright 교수와 공동 연구)
• 두 파장 순간 회절 분광법(Two-color Transient Grating Experoment)의 해석을 위한 이론 개발 (U.C. Berkeley 의 GR Fleming 교수와의 공동연구)

교육경력

대학원 양자역학 조교 스탠포드 대학 화학과(2005-2008)
일반화학 실험 실습 조교 스탠포드 대학 화학과 (2003)
일반화학 실험조교 고려대학교 화학과 (2001-2003)

수상경력

- **2009:** Annual Reviews Prize in Physical Chemistry (Annual Reviews Board, Palo Alto, California)
- **2004-2005:** Franklin Veatch Memorial Fellowship (Stanford University, Stanford, California)
- **1998: 수석 장학생(고려대학교)**
- **1995-1997: 송원 장학생 (송원 장학재단)**
- **1992-1993, 1995-1998: 신한 장학생 (백양)**.

대표논문

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2. "Ultrafast Carbon-Carbon Single Bond Rotational Isomerization in room temperature solution" Zheng JR, **Kwak K**, Xie J, Fayer MD *Science* **313** 1952 (2006).

3. "Dynamics around solute and solute-solvent complex in mixed solvents" **Kwak K**, Park S and Fayer MD. *Proc. Nat. Acad. Sci. U.S.A.* **104** 14221 (2007)

4. **"**Frequency-frequency correlation functions and apodization in two-dimensional infrared echo spectroscopy" **Kwak K**, Park S, Finkelstein IJ and Fayer MD *J. Chem. Phys.* **127** 124503 (2007**)**.

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6. "Biomimetic Self-Templating Supramolecular Structure" WJ Chung, JW Oh, **K Kwak** ,BY Lee, J Meyer, E Wang, A Hexamer, SW Lee *Nature*,**478** 364 (2011)

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4. "Amide I modes of alpha-helical polypeptide in liquid water:Conformational fluctuation, phase correlation, and linear and nonlinear vibrational spectra" S. Ham, S. Hahn, C. Lee, T.-K. Kim, **K. Kwak**, M. Cho, *J. Phys. Chem. B.* **108**, 9333 (2004) (공동 참여)
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44. Bathochromic Shift in Absorption Spectra of Conjugated Polymer Nanoparticles with Displacement along Backbones, Dongkyun Seo, Jonghyup Park, Tae Joo Shin, Pil J. Yoo, Juhyun Park *, and **Kyungwon Kwak***, *Macro. Res*, **23**,574 (2015) **(공동 교신)**
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49. Ultrafast Structural Fluctiations of Myglobin-Bound Thiocyanate and Selecnocyanate Ions Measured with Two-Dimensional Infrared Photon Echo Spectroscopy, Michal Maj, **Kyungwon Kwak**, Minhaneng Cho*, *ChemPhysChem*, **16**,3468-3476 (2015). (공동 참여)
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51. Detection of the carbamate insecticide methomyl in foods using terahertz time-domain spectroscopy, Seung Hyun Baek; Ju Hee Kang; Yeun Hee Hwang; Kang Min Ok; **Kyungwon Kwak***; Hyang Sook Chun*, in revision, *Journal of Infrared, Millimeter, and Terahertz Waves* (2015) **(공동 교신)**
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