

# Periodic Tabloid

Chemistry and Chemical Engineering Division at Caltech

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## Two CCE Faculty Receive Sloan Fellowships

Dr. Sarah Reisman and Dr. Theodor Agapie, Assistant Professors of Chemistry, receive the 2012 Alfred P. Sloan Fellowship.

The Alfred P. Sloan Foundation has awarded Dr. Sarah Reisman and Dr. Theodor Agapie, Assistant Professors of Chemistry, the Sloan Research fellowship for outstanding early-career scientists and scholars. The fellowship was awarded in eight scientific fields, including chemistry. Fellows received \$50,000 to be used to further their research. Three other young Caltech researchers received this fellowship: John Asher Johnson, Assistant Professor of Astronomy; Yi Ni, Assistant Professor of Mathematics; and Christian Ott, Assistant Professor of Theoretical Astrophysics.

Also in 2012, Sarah Reisman receives the Rising Star award by the Women Chemists Committee (WCC) of the American Chemical Society (ACS). Reisman was announced last year as the winner and will be presented with the award at the 243<sup>rd</sup> national meeting in San Diego.



### Dr. David A. Tirrell Named Director of Beckman Institute

Dr. David A. Tirrell, the Ross McCollum-William H. Corcoran Professor and Professor of Chemistry and Chemical Engineering, has been appointed director of Beckman Institute. He succeeds biologist Barbara Wold, who was director of Beckman Institute for 10 years. The Beckman Institute was founded in 1989 by Harry Gray, the Arnold O. Beckman Professor of Chemistry, who was its first director. Tirrell is one of only 13 living members of all three branches of the National Academies (Sciences, Engineering, and Medicine). He served as CCE Chair from 1999 until 2009.





### New baby born to Dr. Sarah Reisman, member of CCE Faculty



Oliver Anderson Nickel was born to Sarah Reisman, an Assistant Professor in CCE. Oliver arrived amid the howling Santa Ana winds at 1:34 am on December 1st, 2011. He was 4 lb 10 oz and 19 inches.

### CCE Holiday Party brings everyone together again

In keeping with the yearly tradition, CCE faculty, staff, students, and their guests gathered on December 9, 2011 to celebrate the holiday season. Appetizers, dinner, and drinks were served in the beautiful Dabney Garden, followed by live skits performed by CCE students inside Dabney Hall. A live band played mild dance music later in the evening as the festivities continued until about midnight.





## Ismagilov Group Opens Doors to their New Labs

On January 26, 2012, Rustem Ismagilov, the John W. and Herberta M. Miles Professor of Chemistry and Chemical Engineering, and his research group opened the doors to their newly built 5400 sq. ft. laboratory, located in the basement of the Schlinger building. The lab-warming party was held in the 101 Schlinger Conference Room, which opened to the courtyard. Refreshments were served. A slide show on the conference room display told guests about the research and people in the group. Tours were conducted by Professor Ismagilov and his group.

Visitors were given safety glasses and led to a room equipped for photolithography and microfabrication and a room for a laser workstation, both spaces used for fabricating devices in glass, and an area for hot embossing equipped with an automatic hydraulic press, used for fabricating devices in plastic. The laboratory has two dedicated microscopy dark rooms, which enable all fluorescence quantification for single molecule detection of nucleic acids and characterization of fabricated devices on-site. The laboratory also houses four gradient PCR machines to perform and quantify those experiments. The major equipment includes a wafer spin processor for photolithography and microfabrication, microfabrication workstations, plasma cleaners, inverted microscopes, cameras, lasers, fume hoods, convection ovens, incubators, a refrigerated high capacity floor centrifuge, a ramé-hart model 500 goniometer and various purification instruments. A big welcome goes out to the Ismagilov Lab!



# CCE Remembers Professor Nicholas W. Tschoegl

Nicholas W. Tschoegl, Professor of Chemical Engineering, Emeritus, passed away on the morning of November 14 at his home in Pasadena. He was 93.

An expert on polymers, Tschoegl did research on synthetic rubber and a special type of large molecule called block copolymers, studying how their molecular structures affected their properties. Some of his most important scientific achievements include work to understand the effect of different pressures on the viscosity and elasticity of rubbery materials. His book, *The Phenomenological Theory of Linear Viscoelastic Behavior*, remains the authoritative text on the mechanical response of polymeric materials.

"Besides being an eminent polymer scientist, Nick Tschoegl had a broadly commanding intellect," said John Seinfeld, the Louis E. Nohl Professor and professor of chemical engineering. "He was fluent in upward of a dozen languages and could discuss virtually any area of history or language with authority. He was a true renaissance scholar."



"It was Nick's curiosity that set him apart," said Bob Cohen (PhD '72), one of Tschoegl's first graduate students. "I was in his group of graduate students in the late 60's; young people were looking for gurus in that time period, and Nick was ours. The discussions at our remarkable weekly research group lunches at Caltech's Athenaeum were shaped by Nick's passions—topics such as the lost city of Atlantis, structural connections among the dozen languages that he spoke fluently, and the demise of central European nobility in pre-World War II Europe. He treated us like family, opened his home to us, and took us on amazing field trips to places like Lancaster, CA to see the poppies bloom in the desert and to San Simeon to examine the reflecting pools at Hearst Castle."

Tschoegl was born in 1918 in Moravia, the eastern part of what's now the Czech Republic. When he was just three months old, his father died during the end of World War I on the Italian front. Raised by his mother, he would spend his formative years in Hungary, Germany, and Czechoslovakia. By the time he was nine years old, he became fascinated with electricity, which sparked his interest in science, according to his oral history.

At this time, he also developed a passion for languages and linguistics that would follow him throughout his life. Already proficient in German, Hungarian, and Czech, he would study English, French, Italian, and Latin. In high school, he picked up some Turkish and learned Arabic and Cyrillic scripts. He would eventually study other writing systems, including Egyptian hieroglyphics, Assyrian and Babylonian cuneiform, Chinese, and Japanese.

After Tschoegl finished high school in 1936, he joined the Hungarian Army, as was required at the time. War was imminent, and after Europe became engulfed in conflict, he was stationed in Ukraine from 1942-1943, fighting in three major battles. He then returned to Hungary, which was invaded by the Nazis in 1944. At the end of the war, he was shot by a Soviet scout during the siege of Budapest. He managed to escape from his assailant, running into the basement of a nearby apartment. Soon, Germany surrendered and Hungary came under Soviet control. Tschoegl married his wife, Sofia, in 1946 and had his first son, Adrian, in 1947. In 1948, he and his family fled from communist rule, taking a boat across a lake in the dead of night to the Austrian border. "I'll never forget this moment in all my life," he said in his oral history.

After a year in Austria, the family went to Sydney, Australia, where his second son Christopher was born in 1954. Tschoegl finished his education, receiving a bachelor's degree at the New South Wales University of Technology in 1954 and a PhD in physical chemistry in 1958 from the same institution, which was renamed the University of New South Wales. He then started a job at the Bread Research Institute of Australia, doing pioneering work on the rheology (the study of the deformation and flow of matter) of wheat flour dough. In 1961, he accepted a position at the University of Wisconsin working on synthetic polymers. In 1963, he spent two years at the Stanford Research Institute, before joining Caltech in 1965 as an associate professor of materials science. He became a professor of chemical engineering two years later, and became emeritus in 1985.

"He led by example, holding us to his own high standards, teaching us how to ask the right questions, and insisting that we remain open to the partial answers that came back from our experimental thesis projects," Cohen said. "I can hear him telling us to 'Live with your data' before drawing conclusions. Most of all he wanted us to learn and to enjoy learning."

Tschoegl is survived by his son Adrian, daughter-in-law Naomi, and two grandchildren, Matthew and Elizabeth. His wife Sofia passed away in 2008 and his son Christopher passed away in 1995.

A memorial service for Professor Tschoegl was held at the Athenaeum in the East West room on December 2, 2011.

—Marcus Woo, Science Writer



Dr. Ahmed H. Zewail, the Linus Pauling Professor of Chemical Physics & Professor of Physics and the 1999 Chemistry Nobel Laureate, has been named one of the Top American Leaders of 2011 by The Washington Post and Harvard Kennedy School's Center for Public Leadership.

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