

## Acceptance of the Mineralogical Society of America Award for 2005

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Mr. President, Ross, Ladies, and Gentlemen:

I can hardly find the words to express my happiness for the honor of being selected for the Mineralogical Society of America Award. This award is so prestigious that I could not believe Michael Carpenter when he phoned me last year from Denver to inform me of the decision of the MSA council. I knew Michael too well to think that it could be a joke; nevertheless I spent the rest of the day in a sort of absent-minded state thinking about all the famous scientists who obtained the award before me and wondering if it was really true and if I really deserved such reward for my research. Luckily it was Sunday so the only serious damage I caused with my lack of concentration was to the evening meal.

Ross already gave a detailed account of my scientific life with emphasis on the work I have done. What I would like to do is to move that emphasis on the people who made the work possible and without whom I would not be here today.

At the end of my chemistry degree in 1993, I was considering a job in industry when a former chemistry student and friend of mine told me that Vittorio Tazzoli and Chiara Domeneghetti at the Department of Earth Sciences in Pavia were looking for a Ph.D. student. The thought of three more years of University life before starting a “real” job was quite appealing so I applied for that Ph.D. position. That I am still in science today, I owe to Chiara and Vittorio who taught me that minerals are not just nice stones displayed in museums, but also very fascinating materials to study. Chiara in particular, insisted on giving me a research project that required a close collaboration with Michael Carpenter in Cambridge, thinking that this would open more opportunities for a possible scientific career. She could not have been more correct! I spent the three years of my Ph.D. travelling between Pavia and Cambridge, enjoying every minute of my experimental work both at the X-ray diffractometer and at the IR spectrometer, and spending many hours discussing with Chiara, Vittorio, and Michael. I could not imagine then that these three supervisors I was listening to, sometimes with admiration, sometimes with doubt, would with time become close collaborators and very good friends. After our paper on the microscopic behavior of the diopside–jadeite solid solution was rejected; their support of my work gave me enough self-confidence and motivation to continue with my research path without resorting to more conventional methods. It also helped to know that Ekhard Salje, who suggested the use of the autocorrelation function for analyzing my complex IR spectra, thought that my results were making possible a new way of interpreting solid solution behavior. In the end, *American*



*Mineralogist* recognized that as well and the paper was finally published a year after the end of my Ph.D. In the meantime, the collaboration between Pavia and Cambridge continued, the only changes being that Cambridge was paying my post-doc salary and that my research project required at least three times more work. I spent several days and nights making IR pellets and sitting in front of the IR spectrometer analyzing them. If my IR powder spectra were of very high quality, then I owe that to Ming Zhang who taught me that no matter how good an IR spectrum looks, there is always a way to collect a better one.

The quest for a better understanding of solid solutions behavior brought me to the Bayerisches Geoinstitut in Bayreuth for two short periods in 1997 and 1998 to learn high-pressure single-crystal X-ray diffraction from Ross Angel. His papers on high-pressure phase transitions of clinoenstatite and clinoferrosilite had prompted the idea that cummingtonites (Mg,Fe amphiboles) could act similarly. It was up to me to test this hypothesis. Unfortunately while we were working at the project, Yang and co-authors on the other side of the Atlantic indeed published a paper on the high-pressure displacive phase transformation of an Fe-rich cummingtonite. You can imagine my frustration. Ross, however, encouraged me not to give up the project, because he was sure that we could obtain some innovative results even if

we were not the first to report such phase transition. I learned, thus, that it is worthwhile to follow the suggestions of people you trust; we were, in fact, able to observe the renormalization of the transition pressure not only as a result of cation substitution, but also cation ordering. We also demonstrated the plateau-effect of  $P_1$  close to the grunerite end-member.

Life and science in Cambridge were so good, that after my post-doc I wanted to stay, so I applied for a Dorothy Hodgkin fellowship of the Royal Society and I have to admit that I was very disappointed when it was not funded. Fortunately my application for a Marie Curie fellowship of the European Community to be spent at the Bayerisches Geoinstitut was successful, which meant that I was not out of a job and that I could save a bit of my pride. I left therefore Cambridge in 2000 and went to Bayreuth to work with Ross. At the end of the same year Ross left Bayreuth for a professorship at Virginia Tech, and left alone with the X-ray laboratory, I learnt that X-ray diffractometers can have strong personalities! I also learnt that true friends are there when you need them, even if there are on the other side of the Atlantic. I bet that Ross is the only person who can align a diffractometer just by e-mail!

Although I cannot anymore be considered a young scientist, I still have a lot to learn and I am very lucky that Friedrich Seifert is just few doors away. In spite of what people think of German professors, Fritz's door is always open and no matter how busy

he is, he always find the time to listen to problems and to help finding a solution.

To follow a career in science, it is necessary to have a strong motivation that, in my opinion, derives from a fine balance of self-esteem, enthusiasm, and social environment. I was lucky enough to find in every place I have been a lively and interactive environment. The geology students in Pavia provided both me and the other Ph.D. students of Chiara and Tazzoli, including a chemist as well, with the geological key words that made our life easier in a Geology Department. Thanks to them I realized that scientific research can benefit from interdisciplinary interactions. The mineral-physics group in Cambridge was a mixture of people with different backgrounds and nationalities, so discussions during the coffee break were always animated. Among them were a few very motivated young women with whom I spent many evenings discussing mineralogy, science, and life in general late into the night. The Bayerisches Geoinstitut is also an inspiring and lively environment in terms of science, with the advantage that beer is better than in Italy and cheaper than in England.

I think that all of you have experienced scientific research that is fruitful and rewarding, but you know that it also involves moments of frustration and failure. What keeps me going in those moments is the support of my colleagues and friends. The MSA award will be a further motivation for me to work harder and better. Thank you.