



From 'dwarf' research to Institute management – Christine Arlt

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For years, Christine Arlt manipulated the tiniest of particles – 'nanos'. Today, the 32-year-old researcher is Deputy Director of the Institute of Composite Structures and Adaptive Systems at the German Aerospace Center (Deutsches Zentrum für Luft- und Raumfahrt; DLR). With the same enthusiasm and dedication she brought to the world of nanoparticles and polymers, she is now all fired up about her new area of responsibility, creating new opportunities for the Institute's employees and driving forward the development of a common culture. We present the scientist and manager in our portrait series 'People at DLR'.

If you had asked Christine Arlt back in 2002 where she was going to end up working, she would doubtless have evoked neither the world of nanoparticle research nor that of institute management. Back then, she was standing for the first time before an oil platform in a factory in bitterly cold Oslo: "The sheer size of it captivated me." Just three years later, she was dedicating her attention to the incredibly tiny nanoparticles – invisible to the naked eye. The word 'nano' is derived from the Greek word for 'dwarf' – and even that is an exaggeration; a nanometre is one billionth of a metre. "I always try to draw a comparison between Earth and a hazelnut; that reflects the ratio of sizes between one metre and one nanometre," states Arlt. Nanoparticles turn the entire physical and chemical world upside down, simply by virtue of their size. Christine Arlt takes a pencil and paper and starts to draw: "Let's say I have a gold bar here, I can pick it up and place it on the table. But if I only have one nanoparticle of that gold bar, it would possess entirely different chemical properties." The passion this scientist feels for these tiny particles is still very present today. "I was fascinated, and I really loved working in this field."

Great changes wrought by the tiniest particles

At the smallest level, nature has created something unique that mankind endeavours in vain to emulate, even with manufactured materials. But here is what scientists can do – take nature as a guiding example. "We would like to make use of the capabilities of nanoparticles to improve our materials and to design entirely new properties." Christine Arlt spent countless days, evenings and weekends in laboratories pursuing basic research for her doctorate.

In the Virtual Institute 'Nanotechnology in Polymer Composites', a joint venture between DLR and universities, she acquired projects, managed investigations and coordinated the participants. She and her colleagues wanted to understand what it is that holds the very essence of the 'nanoparticle world' together. What reciprocal interactions take place between the surface of a polymer and nanoparticles? Which mechanical properties are involved? In her dissertation, she set up analytical methods to address these questions. "The workload had, of course, almost doubled because of this, but on an exciting topic such as this one, that no longer mattered," explains Arlt.

Finally, in March 2011, it was time to move from the laboratory to management. At this time, Christine Arlt took over management of space-related issues in her Institute. In autumn 2011, she added the post of Deputy Director of the Institute to this. Now her everyday working life embraces a broad palette of management tasks. "Back at home, the books on management, leadership, employee motivation and communication are starting to pile up – that too has turned into something of a hobby." In addition, she has attended many seminars on these topics and is in the DLR Mentoring Programme, alongside an experienced colleague, and they regularly exchange 'mentees'. Christine Arlt's scorecard is clocking up results ever faster, and the enthusiasm this 32-year-old has for her new area of responsibility is palpable. She wishes to create new structures for identifying and promoting high-potential new talent within the Institute.

The employees are encouraged to talk to one another, to brainstorm ideas, to exchange views – and Christine Arlt views all of these things as essential for the success of the Institute, one that has grown significantly over the last few years. "Our new building will also have a creative space in which members of staff can get together and discuss things." A concept that more and more companies are implementing, quite literally to create space for new ideas.

Her task profile also includes quality and knowledge management as well as marketing and public relations work. All of that alongside her ongoing work for the Virtual Institute and management of space-related activities at DLR. Mind you, her day does have only 24 hours: "To use my working energy in a more targeted fashion, I will shortly be giving up the space management role," explains Arlt. Has she found it difficult to swap the laboratory for the management desk? "No," she says, and laughs. "Those nanoparticles fascinated me, and I invested all of my energies in that research work. However, it was also perfectly clear to me that, after my dissertation, I wanted to do something else and would be seeking to develop my career into management. That meant that even the jump from tiny nanoparticles to people was not a problem for me."

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Research on the 'nanos'



Christine Arlt with her colleague Wibke Exner in the laboratory conducting research into nanoparticles.

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Christine Arlt in front of a microwave autoclave



The microwave autoclave at the DLR Institute of Composite Structures and Adaptive Systems is used to heat and harden components using microwaves.

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