



## VIDEO TRANSLATION

**DCA:** Welcome to everyone tuning in - To assist in the transfer of knowledge we will be conducting a series of video interviews with partners of the Marie Curie European Exchange Project No 734340 Dew-Cool-4-CDC. Today I am pleased to be joined by Mr Gaofeng Lu, PhD Candidate, from Shanghai Jiaotong University. Hello, Mr Lu.

**Mr Lu:** Hello.

**DCA:** To help those watching could you first tell me a little bit about Shanghai Jiaotong University (SJTU) and your daily responsibilities within the organisation?

**Mr Lu:** Shanghai Jiaotong University is one of the most historic universities in our nation, as well as a world-famous institution of higher education. It is run by the Ministry of Education and Jointly established with Shanghai Municipality, ranking as a “985” and “211” university. The university was founded over 125 years and was initially named as “Nanyang Gongxue” and later became SJTU after a series of developments. There are many prominent SJTU alumni in politics and science, such as Jiang Zeming, Qian Xuesen, Li Shutong and Cai E. etc. SJTU also helped to develop many ‘firsts’ in Chinese history, such as the first internal combustion engine, motor, warcraft and carrier rocket in China, which acknowledge the efforts of SJU alumni. Currently, SJTU contains 33 Faculties and Departments. I work in the Institute of Refrigeration

and Cryogenics under School of Mechanical Engineering. Daily responsibilities include work on our projects conducting experiments and theoretical research.

**DCA:** Can you tell me about your involvement in the Marie Curie European Exchange Project?

**Mr Lu:** Related to the Marie Curie European Exchange Project, we are responsible for the construction of sorption and desorption recycle system, and the development of solar air collector and heat accumulator. We worked with Pro Yang Wansheng from Guangdong University of Technology to set up the tests of absorption and desorption recycle through a series of experiments. We also worked with several enterprises to develop and test the heat accumulators.

**DCA:** What are the principal goals and objectives of this project from your perspective?

**Mr Lu:** Dew Cooling of Data Centre targets the high energy consumption for cooling and low utilization factor of natural cooling sources. This project aims to utilize natural cooling sources and to apply dew-point evaporative cooling technology in data centre. The dew-point evaporative cooler is still limited, and not applicable in hot and humid areas. To improve the range of application, we combined dehumidifying technology with the dew-point evaporative cooler to reduce the energy use of data centre. We also conducted integration and innovation work based on dew-point evaporative cooling technology, such as solar thermal storage technology and the development of heat pipe technology.

**DCA:** Specifically what work packages and deliverables are you responsible for as an organisation?

**Mr Lu:** We are responsible for researching solar heat collector and accumulator, as well as the test work of the dehumidifying system, with the aim to match the whole system.

**DCA:** Next we'll ask some technical questions. Can you introduce to our audience to the sorption/desorption cycle technology that developed or used in this project?

**Mr Lu:** For this technology, we use silica gel as the sorbent and eluent, then utilize solar energy and microwave to drive the regeneration, the exhaust waste heat can be used to drive the regeneration. It is a technology driven by multiple energy, complementary and coordination.

**DCA:** Can you tell us more about SJTU's work in the development of this technology and why is this technology important to the whole system?

**Mr Lu:** SJTU built and verified some models related to heat transfer during the sorption and desorption process and investigated the impact of varied parameters like solar radiation, time, sorbent or thickness etc. on the absorbent bed through some data simulations. We also researched the best operating conditions providing a reference for the system optimisation. As a part of the whole dew-point evaporative cooling system, this pre-treatment process reduces the humidity of fresh air before it enters the cooler, so that the efficiency and application of the system can be improved.

**DCA:** Can you introduce to our audience to the heat storage/exchanger technology that has been developed or used in this project?

**Mr Lu:** Solar energy is stored in this technology, we utilize solar-air collectors to heat the exhaust system in data centre. But solar energy is too powerful, so we remove some remanent solar energy, which extends the utilization period of solar energy. Our work contains the integrated module development of heat storage/exchange technology, as well as experiments and data simulations.

**DCA:** So why is this technology important to the whole system?

**Mr Lu:** Firstly, this technology improves the quality of exhaust waste heat in data centres. It also makes full use of renewable energy like solar waste heat and enhances the operating efficiency of the whole system.

**DCA:** Finally, can I ask you to summarise why it was so important for Shanghai Jiaotong University to participate in this project and highlight the value of what it has and or will deliver?

**Mr Lu:** Shanghai Jiaotong University has got rich results in sorption/desorption cycle, utilisation of solar energy and low-quality excess heat. This project can help to transform our research results into practical applications and examine the feasibility of our technology. It also helps with the development of our students and expands the cooperation among researchers. During participating in this project, SJTU has been able to display our in-depth knowledge which allows cooperating organisations to gain more understanding of SJTU.

**DCA:** That's great Mr Lu, and just about leaves me enough time to thank Mr Lu, from Shanghai Jiaotong University for taking the time today to explain a little more about the Marie Curie European Exchange Project and the valuable contribution it has made to the research and development of the Dew Point Cooler technology. This interview will be available to view on the project website shortly, where you will also find interviews with all the partners involved in this project. Thank you.

