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Abstract for an Invited Paper
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Spin quantum measurements on diamond defects

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Diamond defects allow for precise measurement of single electron and nuclear spin quantum states. The excellent controllability of these spins as well as efficient decoupling from environment make them an ideal playground for engineering complex quantum states and development of elaborate control schemes. The talk will describe how nuclear spin states can be efficiently read-out and used as Qbits in spin clusters. Routs towards the controlled engineering of extended spin arrays as well as coupling to control structures will be discussed.