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Improvement of acoustic conditions in a historical interior by
means of a DSP-controlled sound-reinforcement system

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Stringent building conservation requirements in historical interiors pose substantial limitations in acoustical treatment and sound reinforcement systems used to secure proper sound quality. This presentation discusses the means undertaken to improve the acoustic conditions in the historic Great Ballroom of the Royal Castle in Warsaw. Originally, the room was too reverberant ($T_{30} = 2.9$ s at 500 Hz) what resulted in a lack of clarity of performed music and poor speech intelligibility ($STI < 0.3$). A precise laser scan of the interior was made to obtain input data for a computer acoustic model of the room. This model was used for selection of a DSP-controlled sound reinforcement system to improve listening conditions for speech and music. [Work supported by the Polish Ministry of Science and Higher Education, grant No. R17 004 02].