

**ACOUSTICS2008/1956**  
**Diffuser design for both auditorium and stage acoustics in concert halls**

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This study investigates the effect of the shapes and the locations of diffusers on acoustical characteristics, both in the audience area and on the stage, using a 1:50 scale model. Random-incidence scattering coefficients of the diffusers were measured in a reverberation chamber together with the RT, EDT, C80, G and ST1 of the model hall. The results show that an appropriate design of diffusers in halls affects the sound field of both the auditorium and the stage of the hall. It was also found that the effective number of surface reflections at a receiver position actually quantifies the sound diffusion. Through instillation of omni-directional diffusers close to stage walls, the number of reflected rays increases not only in the audience area but also in the stage area.