

## **An innovative transmission mechanism applicable to variable speed wind turbines**

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### **Abstract.**

An innovative transmission mechanism, named as independently controllable transmission (ICT), is proposed in this study. While being applied to the variable speed wind turbines, the proposed ICT mechanism can transmit a steady-speed output, which is independently manipulated by a controller and completely not affected by the fluctuant speed of the rotor, to the generator to generate the electric power with constant frequency. The ICT mechanism is fundamentally composed of two sets of planetary gear trains and two sets of transmission-connecting members. Two prototypes of the ICT mechanisms are assembled to examine their kinematical characteristics and to demonstrate their feasibility in engineering applications.