

**Supervisor's opinion on PhD thesis of Mr. Tao Yang, M.Eng.**

Thesis title: **Advanced Fibrous Materials for Acoustic Performance**

Mr. Tao Yang, M.Eng., has worked for his PhD thesis under my supervision since 2014. His research is focused on Advanced Fibrous Materials for Acoustic Performance.

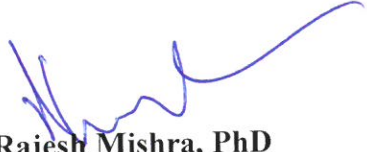
In his work, he has developed perpendicularly-laid nonwoven samples by two different manufacturing techniques: vibration and rotating perpendicular lapper. Heat-pressing method was employed to form samples with varying thickness. This study determines the influence of some structural characteristics and laying techniques on the sound absorption properties of perpendicularly-laid nonwovens. The compression energy and compression load of perpendicularly-laid nonwovens were carried out by using a universal testing machine (TIRATEST 2300). The potential compression mechanism of the nonwoven fabric was identified with support of the compression stress-strain curve, work done and efficiency at different compression stages.

Perpendicularly-laid nonwoven fabrics have special thermal and air permeability behavior compared with traditional cross-laid nonwovens due to their through-plane fiber orientation. Hence this research work also investigates the influence of different structural parameters of perpendicularly-laid nonwoven fabrics, such as areal density, porosity, thickness, on thermal properties and air permeability. The potential relationships between thermal resistivity, air permeability and acoustic properties were also investigated.

His publication activities are in excellent level. Tao Yang has published about 15 papers in international journals with impact factor. Some more are under review and expected to be published soon. He has presented more than 15 papers individually or jointly at international conferences. 5 chapters are published in reputed books. These are strong indicators for his thesis as a comprehensive work of independent research.

The dissertation work is formally correct, parts of the text or images are properly cited and all literary sources are listed in accordance with established rules. Checking of plagiarism on 16. 05. 2019 showed no relevant similarity to other work.

I therefore recommend the thesis for defense.

  
**doc. Rajesh Mishra, PhD**  
**Supervisor**

