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<p>Author: A006</p>  <p>Dr. Mieow Kee, Chan</p> <p>SEGi University, Malaysia 15 minutes</p>	<p>Title: <i>The performance of double layer structure membrane prepared from flowing coagulant</i></p> <p>Authors: Chan Mieow Kee, Anthony Leong Chan Xeng, Sasiskala Regal, Balvinder Singh, Preeshaath Rao, Yap Koon Eu and Ng Sok Choo</p> <p>Abstract: Membrane with double layer structure is favourable as it exhibits smooth surface and macrovoids free structure. However, its performance in terms of permeability, porosity and strength has not been studied thoroughly. Additionally, the effect of flowing coagulant on the formation of double layer membrane has not been reported. Thus, the objective of this study is to investigate the performance of double layer membranes, which were prepared using flowing coagulant. Results showed that when the coagulant flow changed from laminar to turbulent, the pure water permeation of the membrane increased. It was due to the higher porosity in the membrane, which prepared by turbulent flow (CA-Turbulent) compared to the membrane which fabricated under laminar condition (CA-Laminar). This can be explained by the rapid solvent-coagulant exchange rate between the polymer solution and the turbulent coagulant. In term of strength, the tensile strength of the CA-Turbulent was 32 MPa, which was 100% higher compared to CA-Laminar. This may due to the presence of large amount of nodules on its surface, which reduced the surface integrity. In conclusion, flowing coagulant altered the membrane properties and adopting turbulent coagulant flow in membrane fabrication would improve the porosity, surface roughness and the strength of the membrane.</p>
<p>Author: A008</p>  <p>Dr. SWATI JAGANNATH PATIL</p>	<p>Title: <i>Facial synthesis of nanostructured ZnCo2O4 on carbon cloth for supercapacitor application</i></p> <p>Authors: Swati J Patil, Jungsung Park and Dong-Weon Lee</p> <p>Abstract: In this work, we have synthesized the ZnCo2O4 electrode by a facial one-step hydrothermal method on a carbon cloth for the supercapacitor application. The structural and phase purity of the prepared electrode material was confirmed by X-ray diffraction (XRD) technique. The surface morphology and elemental stoichiometry were studied using field emission scanning electron microscopy (FE-SEM). The FE-SEM micrograph illustrates that the ZnCo2O4 material is composed of microstrips with a ~0.5 µm width and length in micron uniformly covered the carbon cloth surface. The ZnCo2O4 electrode material further investigated for electrochemical analyses. The cyclic voltammetry results showed that the ZnCo2O4 microstrips electrode exhibited the highest specific capacitance of 1084 F/g at 2 mV/s scan rate. Remarkably, a maximum energy density of 12.5 Wh/kg was attained at a current density of 2 mA/cm² with the power density of 3.6 kW/kg</p>

<p>Chonnam National University, South Korea</p> <p>15 minutes</p>	<p>for the ZnCo₂O₄ microstrips electrode. Furthermore, the 96.2 % capacitive retention is obtained at a higher scan rate of 100 mV/s after 1000 CV cycles, indicating excellent cycling stability of the ZnCo₂O₄ microstrips electrode. The frequency-dependent rate capability and an ideal capacitive behaviour of the ZnCo₂O₄ microstrips electrode were analyzed using impedance analyses; a representing the ion diffusion structure of the material. These results show that the ZnCo₂O₄ microstrips electrode could be a promising material for supercapacitor application.</p>
<p>Author: A010</p>  <p>Prof. Yu-Ren Wu</p> <p>National Central University, Taiwan</p> <p>15 minutes</p>	<p>Title: <i>Dual Lead-crowning for Helical Gears with Anti-twist Tooth Flanks on the Internal Gear Honing Machine</i></p> <p>Authors: Van-Quyet Tran and Yu-Ren Wu</p> <p>Abstract: For some specific purposes, a helical gear with wide face-width is applied for meshing with two other gears simultaneously, such as the idle pinions in the vehicle differential. However, due to the fact of gear deformation, the tooth edge contact and stress concentration might occur. Single lead-crowning is no more suitable for such a case to get the appropriate position of contact pattern and improve the load distribution on tooth surfaces. Therefore, a novel method is proposed in this paper to achieve the wide-face-width helical gears with the dual lead-crowned and the anti-twisted tooth surfaces by controlling the swivel angle and the rotation angle of the honing wheel respectively on an internal gear honing machine. Numerical examples are practiced to illustrate and verified the merits of the proposed method.</p>
<p>Author: A1006</p>  <p>Dr. Shang Wang</p> <p>University of Science and Technology Beijing, China</p>	<p>Title: <i>Destructive Behavior of Iron Oxide in Projectile Impact</i></p> <p>Authors: Wang Shang, Wang Xiaochen, Yang Quan and Shan Zhongde</p> <p>Abstract: The damage strain values of Q235-A surface oxide scale were obtained by scanning electron microscopy (SEM/EDS) and universal tensile testing machine. The finite element simulation was carried out to study the destruction effects of oxidation at different impact rates. The results show that the damage value of the oxide strain is 0.08%. With the increase of the projectile velocity, the damage area of the oxide scale is increased, and the damage area is composed of the direct destruction area and the indirect failure area. The indirect damage area is caused by the stress/strain to the surrounding expansion after the impact of the steel body.</p>