mances considered include static bending stiffness, static torsional stiffness and modal frequency. The results show that performance trends between simplified models and detailed actual models are consistent, which proves that it is feasible to apply simplified models in the material selection of autobody plate structures. Finally, the framework of the material selection system using simplified models of autobody parts is designed.

5. Numerical analysis of rainfall saturated-unsaturated seepage and stability of expansive soil slope with fissures

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ABSTRACT: The existence of fissures is an important factor in expansive soil slope under rainfall conditions easily instability. In order to explore the changes characteristic of expansive soil slope seepage field and stability under rainfall conditions, Carried out considering fissures slope under rainfall saturated unsaturated seepage numerical simulation, obtaining slope pore water pressure and transient saturation area distributed in time and space. The analysis results into FLAC3D software that based on the finite difference method, which combined with the corresponding saturated and unsaturated physical and mechanical parameters, achieves stability analysis and numerical simulation of flow field under the presence of fissures, and reflects the expansive soil water softening influence of soil slope stability. Through the example analysis shows that the existence of fissures of expansive soil slope rainfall infiltration and pore water pressure distribution has remarkable influence, the stability of the numerical simulation study are consistent with the existing results, It is proved that this method is effective and practical, and research on slope with saturated unsaturated seepage stability analysis has certain reference significance.

6. MFC/NFC aerogel-Ag composite and its application

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ABSTRACT: MFC/NFC aerogel was prepared, silver nanoparticles (AgNPs) were loaded in the aerogel. Ag-NPS were obtained successfully in the matrices without adding any other binders. The aerogel AgNPS size was defined by TEM. The thermal-stability was marked by TGA. This aerogel showed superior properties for Ag-NPS loading and excellent antibacterial activity. MFC/NFC aerogel will have potential application in antibacterial substrate.

7. Nanopaper-Ag composite and its application

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ABSTRACT: Nanopaper with silver nanoparticles loading was explored in this paper. Ag ions were spread into nanopaper, followed by immersion in NaBH4 solution. Ag-NPS were obtained successfully in the matrices without adding any other binders. AgNPS size was defined by TEM. Its antibacterial activity was assessed. This nanopaper showed superior properties for Ag-NPS loading and antibacterial activity. Nanopaper will have potential application in nanoparticles loading for functional paper field.

8. Research on aerospace measurement and control system based on WPF and WCF

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ABSTRACT: The system structure of the original control system of industrial equipment centralized tightly coupled, cause the business function expansion is not flexible, system optimization and maintenance problems. In view of this situation, based on the WPF (Windows Presentation Foundation) and WCF (Windows Communication Foundation) multilayer, low coupling, high scalability, distributed system architecture design. The experimental results show that, industrial equipment, measurement and control system based on WCF and WPF from the presentation layer to the data access layer, have achieved the complete separation function to the server from the client, the realization of the whole system with low coupling, high expansibility, good maintainability requirements.

9. Virtual and reconstruction-- A brief analysis on architecture development of digital technology era

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ABSTRACT: Scientific and technological progress has made a huge impact on the traditional architectural design theory, design processes and methods in the information age. Nowadays more and more architects have begun to use digital technology to achieve the goal from virtual architectural to reality, from the traditional architectural forms to reconstruction style. We could use digital technology to simulate the architecture generative process and final condition by using software in building design phase. We discussed the features of digital technology firstly, and then explored the development trend of building virtual and reconstruction. So we could provide a basis design theory of architecture, as well as to help designers create more time significance buildings by using digital technologies and methods.

10. Model for selecting project members to minimize project uncertainties

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ABSTRACT: Project risks come mainly from the future uncertainties, and new product and service development projects possessing the most uncertainty and therefore the highest risk. However, if the project team has gained experiences from previous similar projects, the risk of the project drastically declines. In other words, an inverse correlation exists between member experiences and project risk. Therefore, the guiding principle would be to assign an experienced member to execute familiar work for that member. This study aims to establish a mathematical model that uses member experience to minimize project uncertainty. The model assigns members with different experiences to the most suitable tasks to minimize project risk, and thus maximize project success rate under constraints of project cost and communication complexity. An experimental case is used to demonstrate the applicability of the proposed model, and results indicated that, under cost and communication complexity constraints, project uncertainty can truly be minimized by assigning the adequate member to the suitable task.

11. Effective thermal conductivity of multiple-phase transversely isotropic material having coupled thermal system

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ABSTRACT: In this study effective thermal conductivity is obtained for two phase transversely isotropic bulk material. Generalized self consistent model and simple energy balance principle is used to derive the system of equations. Spherical inclusions are introduced into the model as void phase to investigate the effects of imperfections on the thermal conduction of bulk materials. The spherical voids are imagined to be carrying process generated gases or containing entrapped air within the material for observing the thermal conduction properties of the materials. Instead of conduction mode, convection conduction coupled mode is consid-