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X.H. Xie, Y. Li, Y. Lai and Y. Cao	1957
Picking Robot Camera Calibration System Based on OpenCV H.X. Peng, X.J. Zou, J.T. Xiong, D.Z. Wu, J.H. Shen and Z.X. She	1963
Current Situation Analysis on Soil Erosion Risk Management in Development and Construction Project	
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Block Mechanism of Microclearance Block Liquid and Lifting Height Calculating Y.N. Gong, J.D. Yin, C. Ai and Y.K. Zhang	1970
Research on Risk Assessment of Reservoir by AHP-Fuzzy Comprehensive Analysis Method L.G. Tian and Z. Liu	1974
Study of the Performance of Practical Magneto-Rheological Elastomers W.B. Feng, X. Yang and Z.Q. Lv	1979
The Simulation and Experimental Study on a Novel Vehicle Active Suspension with Electro- Hydrostatic Actuator	
F.R. Kou, J. Ma and J.B. Wang	1984
Design of Wireless Temperature Sensor Network Based on nRF905 Z.H. Xing, H.W. Wang, X.N. Wang, Q.M. Surong, C.J. Qi and W.K. Zhang	1988
Effect of Rainfall Infiltration on Loess Pitted Courtyard Cave Dwellings Stability J.M. Han and S.Q. Su	1992
Shape Optimization of Lower Control Arm under Typical Road Conditions L.H. Zhao, H. Gu and Q.Q. Hong	1996
Study of the Mathematic Modeling Method of the Center Distance Minimum for Gear Set of Spur Gear	
X.S. Wang and Y. Chen	2000
Numerical Simulation of the Three Component Coefficients of Bridge Y.F. Huang and J.X. Yang	2004
Liquid-Phase Oxidation Modification of Carbon Fiber Surface W.B. Lu, C.G. Wang, H. Yuan and X.Y. Hu	2008
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