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构造物理模拟实验方法的发展与应用

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摘要　构造模拟实验是研究和模拟自然界地质构造现象变形特征、成因机制和动力学过程的一种物理实验方法.在查阅大量相关资料的基础上，总结出构造物理模拟实验的发展史、国内外研究现状，以及在实验理论、实验技术和实验材料等方面的研究进展.目前，构造物理模拟实验已被广泛应用于构造地质学和石油构造地质学研究领域以及石油勘探研究领域，是油气勘探研究由定性描述跨入半定量分析乃至定量分析的有效途径.在研究低级序断层组合方法、纯挤压条件下以及俯冲环境中楔体的形成及演化、铲形主拆离断层控制的伸展构造变形等方面取得了很大进展.作为研究构造变形机制的重要手段，构造物理模拟发展在压扭构造研究、盐构造的物理模拟等方面仍存在不足，研究途径的选择也是构造物理模拟实验面临的一个问题.

关键词　构造物理模拟实验,构造特征,发展,应用

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The development and application of structure physical modeling

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Abstract The structural modeling is one experimental method of physics of researching and simulating distortion characteristic, the mechanism and dynamics process of the nature geologic structure phenomenon. On the basis of consulting massive correlation data, this article summaries the history of experimentics of structural modeling, the domestic and foreign studying present situation, and the studying progress in aspects of experimental theory, experimental technology and experimental material. At present, experimentics of structural modeling has been widely applied to the structural geology and the petroleum structural geology research as well as the petroleum prospecting research, and it is an effective way which the oil gas exploration research strides in semi-quantitative analysis and even the quantitative analysis from the qualitative description. Structural modeling has made the very large progress in the research of lower-order fault combination method, the wedge body formation and the evolution on the pure compressional condition as well as in the subductive environment, the listric host detachment fault controlling extensional structure distortion, etc. Now, as an important method of researching structure distortion mechanism, structure physical modeling still has its insufficiency on the aspects of compressive-torsional structure research, salty structure physical modeling and so on. Choosing the research way is also a question in experimentics of structural modeling.

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