| 扩展功能 |
| --- |
| **本文信息** |
| ▶ Supporting info |
| ▶ PDF(1718KB) |
| ▶ [HTML全文](0KB) |
| ▶ 参考文献[PDF] |
| ▶ 参考文献 |
| **服务与反馈** |
| ▶ 把本文推荐给朋友 |
| ▶ 加入我的书架 |
| ▶ 加入引用管理器 |
| ▶ 引用本文 |
| ▶ Email Alert |
| ▶ 文章反馈 |
| ▶ 浏览反馈信息 |
| **相关信息** |
| ▶ 本刊中 包含"浊积岩储层"的 相关文章 |
| ▶本文作者相关文章 |
| · 郭伟 |
| · 何顺利 |
| · 邓继新 |

应用实例

# 岩石物理在浊积岩储层岩性与气水识别中的运用

郭伟　1,何顺利　1,邓继新　2

1　中国石油大学石油天然气工程学院,北京100249; 2　成都理工大学信息工程学院,四川成都610059

摘要　浊积碎屑岩体系在地震弹性性质及储层物性特征方面表现出一定的变化规律,认识这些变化规律对选择合适的方法及地震弹性属性进行储层岩性识别和孔隙流体检测有重要意义。对于砂岩—泥岩渐变沉积旋回,孔隙度表现为双峰模式,纵波阻抗(速度)—孔隙度关系呈现倒"V"型,纵、横波速度比随粘土含量的增加呈单调增加趋势,反映沉积过程中岩石骨架支撑颗粒性质的变化,因此横波相关弹性属性,如速度比等,对岩性变化有指示作用。对于深度差异不大且成分稳定的厚层砂、泥岩,水动力条件的变化同样会造成岩石分选性的差异,此时速度(阻抗)与孔隙度的关系可用临界孔隙度校正的Hashin　Strikman模型下限定量表征,依此建立的针对特定储层的岩石物理解释图版可用于确定储层孔隙流体类型及岩性。利用浊积碎屑岩储层所表现出的岩石物理特性,用Bayes统计分类技术对浊积碎屑岩储层进行岩性与气水识别取得较好效果。

关键词　浊积岩储层　岩石物理模型　岩性识别　流体检测　Bayes统计分类技术

# Application of rock physics in litholoily discrimination and fluid detection of turbidite reservoir

Guo Wei,He Shunli,Deng Jixin

Guo Wei,

Faculty of Petroleum Engineering;China University of Petroleum;Beijing 102249,China

Abstract　The seismic elastic properties and physical properties of turbidite clastic system show some important variation patterns,and understanding these patterns is significant for selecting proper methods and seismic elastic attributes to determine reservoir lithology and predict pore fluid properties.For sand to shale up　fining sedimentary cycle,porosity variation shows the bimodal pattern,the P　impedance versus porosity exhibits the overturned V　shape,and the ratio of compressional to shear wave velocity increases monotonously with clay content,which reflects the change of the properties of supporting grains of rock frame during deposition.Thus those elastic attributes related to shear wave,such as　v　P/ v　s ratio,can be used to determine lithology.For thick sand and shale layer with almost constant rock components and similar depth range,velocity (impedance) versus porosity can be characterized by the lower bound of the Hashin　Strikman model which is modified with the critical porosity,and the rock physics interpretation template established based on those properties can be used to determine reservoir lithology and pore fluid type.Based on the rock physics properties of turbidite clastic reservoir,the Bayesian classification technique was used to discriminate lithology and predict pore fluid properties.

Key words　turbidite reservoir;rock　physics model;lithology discrimination;fluid detection;Bayesian classification

分类号　P631.4

**DOI:**

**通讯作者**:

**作者个人主页**:

郭伟　1;何顺利　1;邓继新　2