

ISSN 1002-0624

# 东北水利水电

Water Resources & Hydropower of Northeast China



DRSISD

2021 NO. 1

■ 溢洪道高边坡开挖锚固支护长度时效性研究

■ 多级陡坡消力池内流场的数值模拟研究

■ 基于线弹性断裂力学的深埋水工隧洞水力劈裂分析

□ 水利部松辽水利委员会 主办

# 东北水利水电

DONGBEI  
SHUILI SHUIDIAN  
(月刊)

2021年第1期  
1月15日出版  
(第39卷总第438期)  
1983年创刊

全国优秀科技期刊  
中国学术期刊(光盘版)全文收录期刊  
中文科技期刊数据库全文收录期刊  
万方数据库全文收录期刊  
超星期刊域出版平台全文收录期刊

主管单位 中华人民共和国水利部  
主办单位 水利部松辽水利委员会  
编辑出版 《东北水利水电》编辑部  
编委会主任 党连文  
名誉主编 林淀翔  
执行主编 任海霞  
副主编 任海霞 师福东  
责任编辑 任海霞  
地址 长春市解放大路4188号  
邮政编码 130021  
电话 0431-85607758  
邮箱 dbsd@slwr.gov.cn  
刊号 ISSN 1002-0624  
CN22-1097/TV  
印刷 长春祥泰彩色印刷厂  
订 阅 全国各地邮局  
定 价 4.60元  
广告经营许可证:  
吉林省工商广字第01091号

## 目 次

### 规划设计

- 预应力闸墩结构动力特性及响应分析·····刘成浩,田伟峰(1)  
基于ANSYS的尾调室衬砌结构有限元分析·····陆周祺(3)  
基于水工模型试验的溢洪道优化布置·····沈卫(6)  
中低水头水电站厂房结构振动响应分析研究·····郭德昌,刘加进(9)  
透水丁坝在溢洪道泄槽弯道段的应用与优化·····赵凯(13)

### 工程施工

- 溢洪道高边坡开挖锚固支护长度时效性研究·····金宏博(16)  
轿顶子电站泄洪洞和引水隧洞并行段施工方案研究·····潘特(19)  
观音阁水库输水管线穿越工程施工方案研究·····彭震宇(22)  
浅埋隧洞工程施工技术方案优化分析·····张永博(24)  
河谷水平构造岩体卸荷的探讨·····武宁,李大乐(27)  
基于RBF神经网络的长距离引水隧洞涌水量预测·····韩强(31)

### 水生态环境

- 岫岩水文站悬移质输沙率间测分析与率定·····曹世文(33)  
松干水土保持设施验收技术评价工作思路研究·····杨微,刘彬(36)  
松花江(三岔河口以上)生态环境需水研究·····李孟南(40)

### 防汛抗旱

- 旁多水利枢纽防洪优化调度运用分析·····马向东,樊祥船,于洋(44)

### 农田水利

- 辽西干旱地区高效节水灌溉模式研究·····刘世国(48)

### 水利科研

- 多级陡坡消力池内流场的数值模拟研究·····尹舒倩(51)  
基于线弹性断裂力学的深埋水工隧洞水力劈裂分析·····左拥军(55)  
扭面式消能墩在低水头泄水建筑物中的应用·····黄肖(59)

### 工程建设与管理

- 堆土超载引起的河道边坡失稳分析与治理·····尹晓明(62)  
丰满水库坝下至河口段河道演变趋势分析·····曲洋,黄鹤(65)

### 水利信息化

- 基于信息化技术的节水智能监管·····池宸星(68)

封底:别有洞天

杨丽丽 摄

---

## CONTENTS

### Planning and design

- Dynamic characteristic and response analysis for prestressed pier ..... *LIU Cheng-hao, TIAN Wei-feng* (1)  
Finite element analysis for liner structure of tail stock chamber based on ANSYS ..... *LU Zhou-qi* (3)  
Optimal layout of spillway based on hydraulic model test ..... *SHEN Wei* (6)  
Analysis and research on vibration response of powerhouse structure for middle and low head hydropower station  
..... *GUO De-chang, LIU Jia-jin* (9)  
Optimization and application of permeable groyne in curved section of spillway chute ..... *ZHAO Kai* (13)

### Project construction

- Study on time-effectiveness of high slope excavation anchorage support length of spillway ..... *JIN Hong-bo* (16)  
Study on construction scheme for parallel section of spillway tunnel and diversion tunnel in jiaodingzi Hydropower Station  
..... *PAN Te* (19)  
Study on construction scheme of water conveyance pipeline crossing project for Guanyingge Reservoir ..... *PENG Zhen-yu* (22)  
Optimization analysis of construction technical scheme of shallow buried tunnel project ..... *ZHANG Yong-bo* (24)  
Discussion on unloading of horizontal tectonic rock mass in valley ..... *WU Ning, LI Da-le* (27)  
Prediction for water inflow of long distance diversion tunnel based on RBF neural network ..... *HAN Qiang* (31)

### Water ecological environment

- Analysis and determination of suspended sediment transport rate in Xiuyan Hydrological Station ..... *CAO Shi-wen* (33)  
Research on technical assessment to acceptance of soil and water conservation facilities of Songhuajiang main River  
..... *YANG Wei, LIU Bin* (36)  
Study on ecological environment water requirement above Sanchahe river mouth of Songhuajiang River ..... *LI Meng-nan* (40)

### Flood control and drought relief

- Analysis application on optimal flood control operation of Pangduo Water Control Project  
..... *MA Xiang-dong, FAN Xiang-shu, YU Yang* (44)

### Farmland conservancy

- Study on efficient water-saving irrigation model in Western arid area of Liaoning Province ..... *LIU Shi-guo* (48)

### Water study

- Numerical simulation on flow field in a multistage steep slope stilling basin ..... *YIN Shu-qian* (51)  
Hydraulic fracturing analysis on deep buried hydraulic tunnel based on linear elastic fracture mechanics ..... *ZUO Yong-jun* (55)  
Application of torsional energy dissipation pier in low head discharge structure ..... *HUANG Xiao* (59)  
Project construction and management  
Analysis and treatment of river slope instability caused by overloading of mound soil ..... *YIN Xiao-ming* (62)  
Analysis on river evolution trend from Fengman Reservoir dam to estuary ..... *QU Yang, HUANG He* (65)

### Water information

- Intelligent supervision of water conservation based on information technology ..... *CHI Chen-xing* (68)

---

#### SAPONSOR

Song-Liao Water Resources Commission  
Ministry of Water Resources, P.R.China

#### ADDRESS

4188 Jiefang Road Changchun, P.R.China

#### CODE NO.

ISSN 1002-0624  
CN 22-1097/TV

TEL. (0431)85607758

#### EDITOR AND PUBLISHER

Magazine Office of 《Water Resources  
and Hydropower of Northeast China》

#### EXECUTIVE EDITOR-IN-CHIEF

REN Hai-xia

POST CODE 130021

#### E-mail

dbsd@slwr.gov.cn