

Abstracts

McNeese State University

Oral Presentations

A Ring of Conspiracy: Analyzing Conspiracy Theory Audiences

Thomas Bell

Faculty mentor: Dr. Tracy Standley

With the plethora of social media channels available on the internet, conspiracy theories have found a new platform to spread a message. According to Spiral of Silence theory, those people that believe they have a popular opinion become more vocal about that opinion, while those people that believe their opinion is not popular become more silent about that opinion. This study examines two social media platforms, BitChute and YouTube, to determine the types of interactions that occur and how they differ depending on whether the channel embraces conspiracy theories or not.

Oral session 1A

Marie de France's 'Lai of Lanval' as Marian Parable

Hanna Denton

Faculty mentor: Dr. Kevin R. Kritsch

In Marie de France's twelfth-century poem the "Lai of Lanval," a noble knight in King Arthur's court finds himself entranced by a beautiful and mysterious fairy woman. Like many unfortunate heroes before him, he runs afoul of his otherworldly lover, but unlike many of these heroes, he finds that his lady is willing to forgive him and even help him in his time of greatest need. This paper argues that the "Lai of Lanval" combines multiple narrative and folklore traditions to create a spiritual allegory on transgression and redemption. Beginning with the origins of the fairy lover motif in Celtic folklore, the story takes on elements of courtly love poetry, then combines them with themes found in the Marian miracle legends that flourished in England about the time that Marie was writing, thus transforming its original source material.

Oral session 2A

Industrial Filtration System 3D Model and Design

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Faculty mentor: Dr. Ning Zhang

This study explores the formation of filter cakes during industrial filtration processes. The research focuses on a mixture of rice hull ash and liquid using ANSYS Fluent software, which provides simulation capabilities for complex fluid flows and other physics domains. Filter cake formation is a crucial process in filtration that determines the efficiency and quality of filtrate. Rice hull ash is an alternative to traditional filter aids because of its low cost and high adsorption capacity. The study used a 2D model of a cylindrical filter cake for the simulation, developed using the Eulerian approach. A transient analysis was performed to observe the filtration process, with particle size distribution considered for rice hull ash. Comparison of simulation results with experimental data showed significant agreement, confirming the reliability of ANSYS Fluent software to simulate filter cake formation in practical settings. The research revealed that several factors influence filter cake formation during filtration. Particle size distribution of rice hull ash, liquid flow rate, and pressure drop are factors that need consideration while forming the cake. Gradual buildup of the filter cake increased pressure drop across the filter. It is possible to optimize the pressure

input based on these findings to set specific pressure drops to control the particle deposition rate on the filter surface. The optimization will help improve the uniformity and efficacy of filter cake formation processes. The study's optimization potential highlights the usefulness of ANSYS Fluent software and sets off future research into ways to further enhance filtration processes' optimization.

Oral session 2E

Poster Presentations

Monitoring Benzalkonium Chloride Resistant Bacteria in Sewage Contaminated and Recreational Water Bodies

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Faculty mentor: Dr. Chris Struchtemeyer

Benzalkonium chlorides (BACs) are broad-spectrum antimicrobials that are added to a variety of household products. Numerous studies have detected elevated concentrations of BACs in wastewater, lakes, and rivers, but few have quantified numbers of bacteria that are resistant to BACs in their samples. The goal of this work was to quantify and compare the numbers of BAC resistant bacteria in sewage contaminated (collected from aerobic septic systems) and pristine water sources (lakes, rivers, ponds, etc.). The concentrations of BAC resistant bacteria were much higher in sewage contaminated waters (concentrations ranged from 1.6×10^4 to greater than 1.5×10^6 cfu/ml) than pristine waters (BDL in all samples). These findings are concerning since aerobic septic systems often inadequately disinfect wastewater. Additional studies are underway to monitor the fate of these benzalkonium chloride resistant bacteria and determine whether they can serve as a useful indicator of sewage pollution events.

Poster session 1A