

# Risk Assessment

## 1- Pedestrian-Aware Statistical Risk Assessment

**By:**

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**Abstract:**

This paper proposes a statistical framework to assess the risk of passing a non-signalized intersection for vehicles. First, an intensity model of the near-accident event is established by regarding the near-accident event as a non-homogeneous Poisson process. The non-homogeneous Poisson process is defined on the sigma-algebra of the 2-dimension plane of vehicle velocity and distance to the intersection instead of in the time axis. On the other hand, the pedestrian intention is defined as a binary variable with 1 as passing through the crosswalk and 0 as stopping. Logistic function is applied to model the probability of pedestrian intention. The proposed statistical models are evaluated by the residual analysis-based model checking method. Besides, based on the two models, the pedestrian-aware risk model is established to give a predictive risk metric quantitatively when pedestrian appears.

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## 2- Genetic/Familial High-Risk Assessment: Breast, Ovarian, and Pancreatic, Version 2.2021

**By:**

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**Document Type:** Review

**Abstract:**

The NCCN Guidelines for Genetic/Familial High-Risk Assessment: Breast, Ovarian, and Pancreatic focus primarily on assessment of pathogenic or likely pathogenic variants associated with increased risk of breast, ovarian, and pancreatic cancer and recommended approaches to genetic testing/counseling and management strategies in individuals with these pathogenic or likely pathogenic variants. This manuscript focuses on cancer risk and risk management for BRCA-related breast/ovarian cancer syndrome and Li-Fraumeni syndrome. Carriers of a BRCA1/2 pathogenic or likely pathogenic variant have an excessive risk for both breast and ovarian cancer that warrants consideration of more intensive screening and

preventive strategies. There is also evidence that risks of prostate cancer and pancreatic cancer are elevated in these carriers. Li-Fraumeni syndrome is a highly penetrant cancer syndrome associated with a high lifetime risk for cancer, including soft tissue sarcomas, osteosarcomas, premenopausal breast cancer, colon cancer, gastric cancer, adrenocortical carcinoma, and brain tumors.

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### **3- Municipal solid waste management: Dynamics, risk assessment, ecological influence, advancements, constraints and perspectives**

**By:**

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**Volume:** 814

**Article Number:** 152802

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**Document Type:** Review

**Abstract:**

Global energy consumption has been increasing in tandem with economic growth, putting pressure on the world's supply of renewable energy sources. Municipal Solid waste (MSW) has been reported contributing immensely to the improvement of a secure environment and renewable sources. Energy scarcity and conventional MSW disposal methods in developing countries lead towards many environmental and economic issues. Scientists have been able to experiment with various waste-to-energy conversion technologies in light of this situation. This communication highlights and reviews WtE technologies to convert MSW and other feedstocks into electricity, hydrogen gas, bioethanol along with other value added products like fertilizer(s), platform chemicals as an environmentally friendly products. This review comprehensively summarized the dynamics, risk assessment, ecological influence, advancements, constraints and perspectives altogether in field of municipal solid waste management and treatment. State-of-the-art information on ecological influence and risk assessment in handling and transportation of municipal solid waste has been provided. Advanced trends involved in remediation of emerging pollutants and resources obtained from municipal solid wastes have been uncovered. Lastly, this paper comprises constraints and perspectives for uncovering MSW based circular bioeconomy aspects.

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### **4- Occurrence, fate, and risk assessment of typical tetracycline antibiotics in the aquatic environment: A review**

**By:**

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**Document Type:** Review

**Abstract:**

Tetracyclines (TCs), used as human and veterinary medicines, are the most widely used antibiotics. More than 75% of TCs are excreted in an active form and released into the environment through human and animal urine and feces, causing adverse effects on the ecological system and human health. Few articles review the environmental occurrence and behaviors of TCs, as well as their risks and toxicities. Here, we comprehensively summarized the recent advances on the following important issues: (1) Environmental occurrence of TCs. TCs are used globally and their occurrence in the aquatic environment has been documented, including surface water, ground-water, drinking water, wastewater, sediment, and sludge. (2) Environmental behaviors of TCs, particularly the fate of TCs in wastewater treatment plants (WWTPs). Most WWTPs cannot effectively remove TCs from wastewater, so alternative methods for efficient removal of TCs need to be developed. The latest degradation methods of TCs are summarized, including adsorption, photocatalytic, photochemical and electrochemical, and biological degradations. (3) Toxicities and possible risks of TCs. The toxicological data of TCs indicate that several TCs are more toxic to algae than fish and daphnia. Risk assessments based on individual compound exposure indicate that the risks arising from the current concentrations of TCs in the aquatic environment cannot be ignored. (c) 2020 Elsevier B.V. All rights reserved.

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**5- Ecological risk assessment of soil and water loss by thermal enhanced methane recovery: Numerical study using two-phase flow simulation**

**By:**

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**Document Type:** Article

**Abstract:**

Thermal enhanced methane recovery inevitably aggravates the soil and water loss, causing severe harm to the sustainability of groundwater environment and the surrounding ecosystem. Therefore, quantitative analysis of the effect of thermal enhanced methane recovery on groundwater loss and ecological risk of coalbed methane development zone is necessary. In this study, a coupling model of gas drainage and groundwater loss is established. The model considers the dynamic gas diffusion of coal matrix, the two-phase flow of water and gas, and the influence of temperature on such flow. Based on this model, characteristics of groundwater loss of coal seam reservoir caused by enhanced methane recovery are analyzed, and the ecological risk assessment of methane recovery zone is realized. Results indicate that during heat injection, the permeability of the coal seam increases with distance from the borehole due to the competition between two-phase flow and temperature. High temperature develops the

permeability, gas production, and water production of the reservoir. The change rules of water and gas productions are similar with initial increases and subsequent declines. The influence of coal gas diffusion on groundwater loss has a certain time lag. In the early stage, the dynamic attenuation of gas diffusion is not apparent. In the later stage, the supplement rate of gas from matrix to fracture decreases. The initial saturation has a significant influence on the water production rate in the early stage. A large Langmuir volume constant not only strengthens the peak value of gas drainage rate but also the gas drainage rate itself in the later declining period. Large scale coalbed methane development will face ecological risks such as water environment pollution, habitat destruction and soil degradation, which is the key aspect of ecological environment management and risk prevention.