Numerical simulation of chemically reacting Darcy-Forchheimer flow of Buongiorno Maxwell fluid with Arrhenius energy in the appearance of nanoparticles	
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Abstract: Due to the abundant applications in engineering and industrial trade unit, boundary layer issues related to extending surfaces have attracted significant interest in recent years. A crucial idea in physics and fluid mechanics is the boundary layer, which is described as the layer of fluid in the vicinity of bounded area where viscosity effects are noticeable. Each base fluid has a set of essential characteristics that are crucial to its dynamics. The impacts of the final invention depend on the stretching and cooling speeds during the production process. The two dimensional flow of an incompressible liquid within the boundary layer along the stretched sheet was initially described by Crane [
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]. Many researchers deliberated the stretched flow models in the occurrence of hydro magnetic and chemical diffusion effects. Al-Mudhaf et al. [
2
] discussed the inspiration of heat generation on MHD chemical reactive marangoni convection flow with Similarity solutions. Kumaran et al. [
3
] studied the Buongiorrio's fluid due to porous stretched surface. Magyari et al. [
4
] investigated the exact solution for boundary layers Marangoni flow of MHD fluid through stretched sheet. Nanofluids are utilized in biological and engineering processes due to convalesce the thermal conductivity of the primary liquid. Convectional heat transfer's thermal conductivity is caused by the suspension of solid particles, which increased the heat transfer coefficient. Compared to liquids, solid metals conduct heat more effectively. Properties of the nanofluid surface in terms of stability, spreading, and dispersion [
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]. They are used in transportation, nuclear reactors, cooling unit, fuel cell, industrial means and many more ……….

هـ-خوجه

Performance improvement of a modified distiller with V-corrugated absorber and heat pump in different configurations: A thermoenviroeconomic assessment	
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Abstract: More than two-thirds of the surface of the earth is covered by water. Only below 3 % of it is drinkable and primarily located in underground water and frozen rivers. Consequently, the presence of available freshwater is less than 1 %, leading to the world's biggest problem in the current era, as the world population increases, climate changes constantly, and rising temperatures reduce freshwater levels [1]. This led to the tendency of scientists and engineers to innovate and research to get freshwater by desalination of seawater and wastewater, where they came up with many ways to desalinate seawater [2]. Among these methods, reverse osmosis [3], [4], known with its water flux near 37.1 L/m2.h [3], humidification-dehumidification [5], [6], which can handle water with 3.5–81 % salinity and produce freshwater of salinity below 500 ppm, multi-stage flash (MSF) [7], [8], multi-stage flash system produces 30.098 m3/day, freshwater recovery rate 57.544 % and gain output ratio 8.583 [8]. Reaching solar stills (SSs), which are characterized by dependency only on solar energy, have a simple structure and lower cost [9]. They generally consist of metallic basins and transparent covers to allow solar radiation to pass through them to heat and evaporate seawater, then produce freshwater via condensing the generated vapor at the glass cover surface. Many SS-improved designs and modifications are scoping for a maximum freshwater output within high thermal efficiency and low price, such as [10], [11], [12], [13].

هـ-خوجه

Improvement of the performance of hemispherical distillers through passive and active techniques	
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Abstract: The primary goal of the present work is to compare the thermo-economic performance of modified hemispherical distillers by various types of enhancing materials. Three different cases of enhancing materials: (I) Copper oxide Nanofluid, (II) Copper chips, and (III) Copper oxide Nanofluids and copper chips sandwiched between wick material were tested. Each case was applied to the system without an external condenser (MHSS) and with an external condenser (MHSSC) and compared with a conventional one (CHSS). The outcomes were compared regarding system temperatures, hourly yield, daily productivity, thermal performance, and cost per liter of distilled water. According to the findings, the proposed modifications could augment the performance in the ranges of 25.4–79.11 % (productivity), 58.4–79.11 % (energy efficiency), and 7.85–167.42 % (exergy efficiency). Especially, Case III was the most enhanced case in terms of thermoeconomics and distillate water productivity. In this case, MHSSC exhibited a daily distillate water output and a thermal efficiency 79.11 % and 79.107 % better than CHSS, with values of 5.66 L/m2 and 56.15 %, respectively. Additionally, MHSS had the highest daily exergy efficiency, at 2.38 %, indicating a 167.42 % improvement. Moreover, the cost of one liter of distillate water for the MHSS and MHSSC was about 0.029 $/L, with a cost reduction of 20.68 % compared to CHSS.

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