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(19) **United States**(12) **Patent Application Publication****Sun et al.**(10) **Pub. No.: US 2022/0385273 A1**(43) **Pub. Date: Dec. 1, 2022**(54) **SWITCHABLE ACOUSTIC WAVE FILTER  
AND RELATED MULTIPLEXERS****H03H 9/17** (2006.01)**H03H 9/72** (2006.01)**H01Q 9/04** (2006.01)(71) Applicant: **Skyworks Solutions, Inc.**, Irvine, CA  
(US)(52) **U.S. Cl.**CPC ..... **H03H 9/6406** (2013.01); **H03H 9/02007**(2013.01); **H03H 9/17** (2013.01); **H03H 9/725**(2013.01); **H01Q 9/04** (2013.01)(72) Inventors: **Weimin Sun**, Santa Rosa Valley, CA  
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**ABSTRACT**(22) Filed: **May 24, 2022****Related U.S. Application Data**(60) Provisional application No. 63/208,620, filed on Jun.  
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760, filed on May 28, 2021.**Publication Classification**(51) **Int. Cl.****H03H 9/64** (2006.01)**H03H 9/02** (2006.01)

Aspects of this disclosure relate to a multiplexer that includes a switchable acoustic wave filter. The switchable acoustic wave filter can include one or more acoustic wave resonators, switchable acoustic wave resonators, and a switch configurable into at least a first state and a second state. The switch can select a different subset of the switchable acoustic wave resonators to filter a radio frequency signal together with at least the one or more acoustic wave resonators in the first state than in the second state. Related filters, radio frequency systems, wireless communication devices, and methods are also disclosed.

