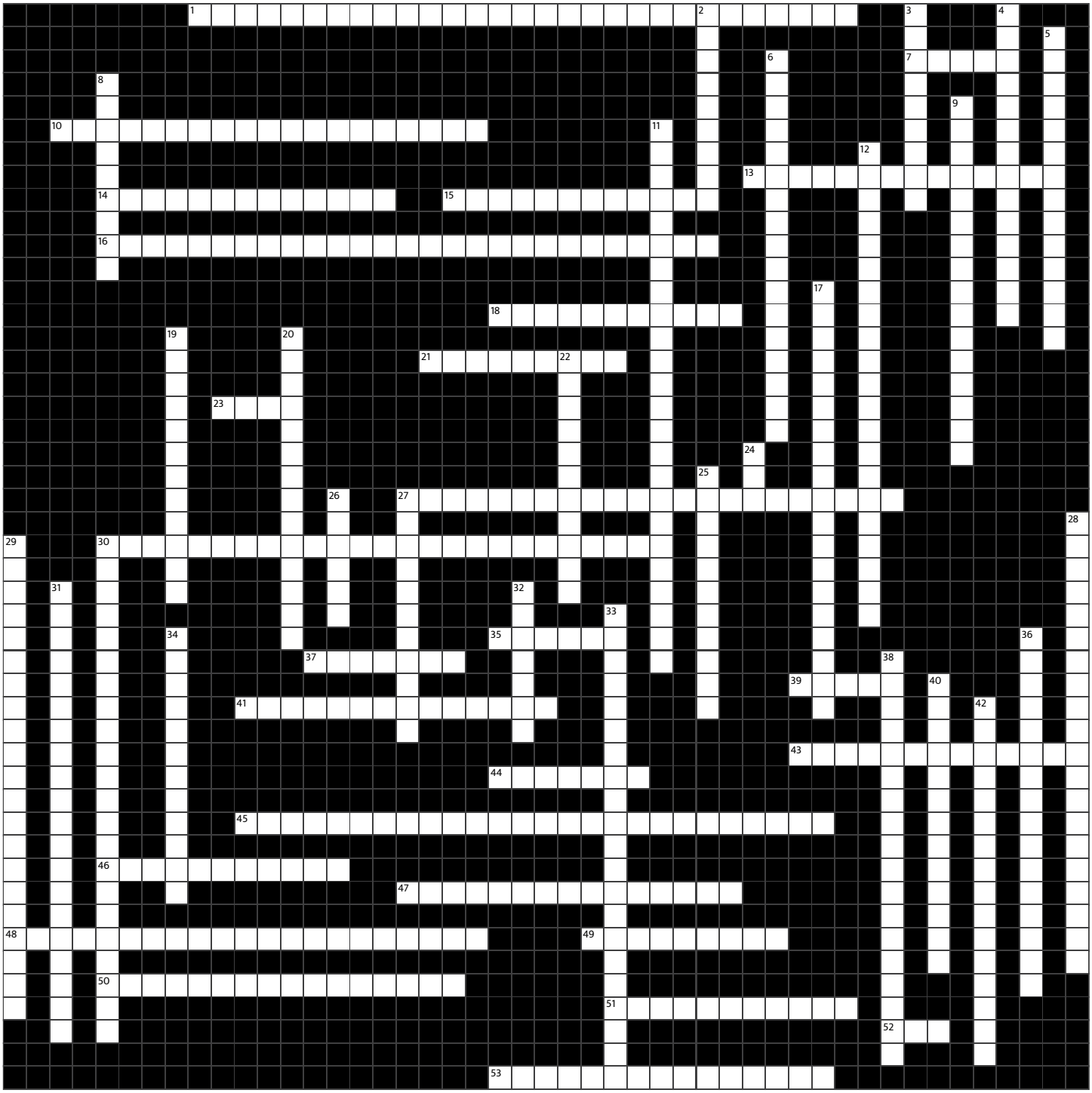

across

1 This open-access journal, launched in 2020, focuses on emerging topics in power electronics.

7 Largest (land-wise) IEEE Region

10 A modelling technique that allows writing a set of equations to model a linearized version of a circuit, useful for designing control loops and for computer simulation of power electronics

13 Material that makes the power devices switch fast and the LED glow green

14 Main event to celebrate PELS Day

15 This research and education center has a main campus in a small town and another location close to the US capital city

16 PELS sister society that is a co-sponsor of APEC, together with PELS

18 It is always referred to as the cosine of an angle

21 This research center, famous for its research in machines and drives, is in America's Dairyland

23 PELS co-sponsors this annual conference, focusing on power electronics and held in North America.

27 Most "Sustainable" PELS committee for coordinating research and standardization in Energy Systems

30 This optimization target in Photovoltaic systems seeks the peak point of the I–V curve under non-uniform irradiance

35 It stores the most energy in an inductor

37 A way to stay in touch with PELS even through Spotify and Apple Music

39 Semiconductor part of the PELS logo

41 Egyptian and Korean scientists who co-invented the MOSFET

43 Term describing converters capable of reversing power flow

44 A converter topology where energy is temporarily stored in a magnetic field and transferred to the output through transformer action with galvanic isolation.

45 Provides energy when the electric grid is down

46 She was the first female Electrical engineering professor in the United States, her work is mainly used for the analysis of three-phase systems

47 18th-century Italian scientist, well known for his work on batteries, who paved the way for studies on the electric field

down

2 Research institute located in the Land of the Rising Sun, renowned for breakthroughs in MMCs and active power filtering

3 This leadership role in PELS is responsible for strategic direction, typically elected for a two-year term.

4 Switching losses in controlled power semiconductor devices depend on (not solely)

5 A feature of a device's package that allows decoupling the thermal path from the electrical one

6 Basic AC-DC converter using only four uncontrolled devices

8 A renewable-based energy architecture where small-scale, decentralized generation units are integrated with advanced control systems.

9 Term for voltage spikes across power switches caused by transformer leakage inductance during turn-off.

11 The first edition of this PELS magazine was published in March 2014, offering insights into power electronics trends.

12 Among its properties, this inverter exhibits good fault tolerance capabilities, and it is ideal to drive electrostatic machines

17 This PELS fellowship supports graduate studies in power electronics and is named after a former PELS President.

19 Indian Electrical engineer who invented the Insulated Gate Bipolar Transistor (IGBT)

20 Around half of the world's electrical energy is generated to power these devices

22 Balkan-born scientist, Pioneer of a non-isolated switching converter topology employing capacitive energy transfer, continuous current at both ports, and named after its developer

24 This institution is in a city famous for American independence, and which hosts one of the most famous marathons in the world

25 19th-century Serbian American inventor, architect of the modern AC power system, wireless energy visionary, and namesake of the SI unit measuring magnetic flux density

26 Advanced rectifier topology ... or European capital

27 This individual, PELS President from 1993 to 1994, is recognized for pioneering work in power electronics at the University of Wisconsin.

28 One of the most ambitious projects in which PELS is involved that could change the lives of a HUGE number of people

48 This PELS committee is responsible for coordinating research and standardization in power conversion modeling, simulation, and digital control.

49 This converter topology can achieve both step-down and step-up operation, but only allows for unidirectional power flow and requires discontinuous inductor current for continuous conduction mode when input and output voltages are equal.

50 A torque type in electric machines that does not result from the interaction of magnetic fields.

51 How Many years ago was PELS founded

52 Located in European soil between high-quality watches, cheese, and chocolate, this institution still preserves the cabinet of its most famous student: Albert Einstein

53 A passive element used to avoid a dangerous increase in DC-bus voltages

29 The 2024 PELS day global webinar format introduced a significant novelty

30 Control technique minimizing the cost over a horizon, subject to the plant dynamics and other constraints

31 In high-frequency resonant converters, this soft-switching technique sought to reduce the losses in high switching frequency converters using a resonant network

32 In which American state has been held the 14th edition of the IEEE Electrical Energy Conversion congress & Exposition (ECCE)

33 This modulation strategy minimizes harmonic distortion in three-phase inverters without carrier signals, but by rotating voltage vectors in a space-phasor representation.

34 The most desirable feature for any power electronic device, especially if it is portable

36 Leading PELS during 2011–2012, this president is known for work in power electronics education and research.

38 An online platform in which it is possible to find extremely high-quality education material, available for free to PELS members

40 This component in a PV system prevents current from flowing from the battery or inverter back into the solar panel.

42 Term used to describe the interface that converts energy from renewable sources and synchronizes it with the utility grid