# AN LED TIMELINE

1952

**KURT LEHOVEC** 

WILLIAM SHOCKLEY

files a patent for an

**RUBIN BRAUNSTEIN and EGON** 

LOEBNER patent a green LED

made from a lead alloy

1958

infrared LED

1951

applies for a patent for

SiC visible lights LED's

## 1993

SHUJI NAKAMURA creates high-brightness blue LED

# 1972

M GEORGES CRAFORD invents the first yellow LED improving the brightness of red and red-orange LEDs

JACQUES PANKOVE pioneers first blue LEDs

1971

THOMAS PEARSALL creates the first high-brightness, high efficiency LED's for optical fibre telecommuications

1976

### 1968

LEDs are integrated into early Hewlett Packard hand-held calculators

## 1962

JAMES R. BIARD and GARY PITTMAN received the first patent for an infrared LED.

> LEDs are used on circuit boards in an early IBM mainframe computer

1964

NICK HOLONYAK employed in General Electric, creates the first practical visible-spectrum LED in New York.



1939 ZOLTAN BAY and

GYORGY SZIGETI patent a silicon carbide electroluminescent lighting device, considered the predecessor to the modern-day LED.

OLEG LOSEV notes that silicon carbide crystal diodes used in radios glowed when excited by an electrical current.

1907

HENRY ROUND

reports light emission from a crystal detector.



#### 2019

## 2007

Many countries, including New Zealand, do not have any incandescent light bulb phase out policy currently in place

Torraca becomes the first township to convert its entire illumination system to LED. Full or partial phase out initiatives on the production & importing of incandescent light bulbs began around the world.

Audi is the first car to use fully LED headlamps



SHUJI NAKAMURA wins the Millennium Technology Prize for development of a white LED

# 2006

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