

## Active Galactic Nucleus (AGN)

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### Active Galactic Nuclei (AGNs) Latest News

Astronomers from the Russian Academy of Sciences, using the Spektr-RG (SRG) space observatory, have detected 11 new Active Galactic Nuclei (AGNs) during their all-sky X-ray surveys.

### What are Active Galactic Nuclei (AGNs)?

- **Active Galactic Nuclei (AGNs)** are **compact regions at the centers of galaxies** that emit **exceptionally high levels of electromagnetic radiation**, often outshining the rest of the galaxy.
- This intense emission arises from either **accretion of matter by a supermassive black hole** or **intense star formation activity**.
- AGNs are among the **most luminous and persistent energy sources** in the universe and are critical to understanding **galaxy formation and evolution**.
- The newly detected AGNs were identified during an **optical and X-ray inspection** of sources listed in the **ARTSS1-5 catalog**, using **SRG's ART-XC telescope**.
- The team has also previously identified **more than 50 AGNs** and several **cataclysmic variable stars**.

## Key Characteristics of the 11 Newly Detected AGNs

- All 11 AGNs are located at **redshifts ranging from 0.028 to 0.258**, indicating they are **relatively nearby** in cosmic terms.
- Their **X-ray luminosities** fall within the typical range of **2 to  $300 \times 10^{39}$  erg/s**, which is consistent with known AGN profiles.

## Classification into Seyfert Types

- All detected AGNs were classified as **Seyfert galaxies**, a type of AGN that is **common and well-studied**:
  - **7 galaxies** were classified as **Seyfert Type 1 (Sy 1)**, characterized by **broad optical emission lines**.
  - **3 galaxies** were classified as **Seyfert Type 1.9 (Sy 1.9)**, showing **partially broadened lines**.
  - **1 galaxy** was classified as **Seyfert Type 2 (Sy 2)**, which exhibits **narrow emission lines** only.
- **Seyfert galaxies** appear like normal galaxies in visible light but show **strong infrared and X-ray emissions** due to activity at their cores.

## Active Galactic Nuclei (AGNs) FAQs

**Q1:** What are Active Galactic Nuclei (AGNs)?

**Ans:** AGNs are extremely bright central regions of some galaxies, powered by supermassive black holes accreting matter.

**Q2:** Why are AGNs important in astrophysics?

**Ans:** AGNs help scientists understand galaxy evolution, black hole activity, and cosmic energy sources across the universe.

**Q3:** What types of AGNs are there?

**Ans:** Common types include quasars, blazars, Seyfert galaxies, and radio galaxies, each emitting energy across various wavelengths.

**Source:** PHY

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