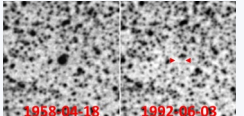


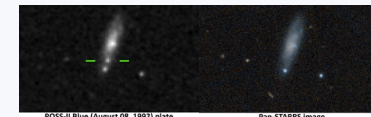


I have not studied at the university yet (but I want and plan to study astronomy at university in the near future), but I contribute to the science, as an amateur astronomer (since August 2009, [only on the basis of self-education](#)), with my astronomical observations and discoveries:

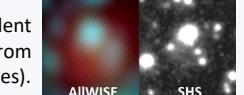
Analysis of archival sky images: this way I discovered several variable stars with the possible dwarf nova (Romanov V1) on two digitized photographic plates of the Palomar Observatory Sky Survey taken in April 1958. My paper: [2018OEJV...190....1R](#).



I also found two possible missed supernovae in digitized photographic plates: AT 1991bm in UGC 11180 and AT 1992bw in UGC 43 (left image; details: [2019TNSTR2388....1R](#)).

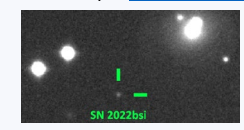


I discovered 10 planetary nebula candidates (and 5 independent co-discoveries) comparing the AllWISE images and photos from SuperCOSMOS H-alpha Survey (SHS). [Example: Ro 2](#) (right images).

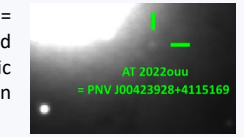


In my paper [2019JDSO...15..434R](#) I described my discoveries of 4 new pairs of stars with almost identical proper motions and parallaxes (probable binary systems) from the Gaia DR2 data. I found some of them when I saw the changing their positions in comparison of images for different years. I also created the VizieR catalogue [J/other/JDSO/15.434](#).

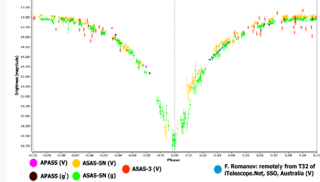
Analysis of recent sky photographs: I discovered faint (≈ 21.5 mag.) supernova candidate AT 2020quu [2020TNSTR2387....1R](#) (confirmed photometrically) in the Pan-STARRS images during the International Asteroid Search Campaign. I also discovered supernovae (confirmed by spectra) in the images of the Catalina Real-Time Transient Survey (in the CRTS Great Supernova Hunt project): SN 2022bsi in NGC 5902 (details: [2022TNSTR.339....1R](#)) and SN 2022jhn in MCG -01-52-016.



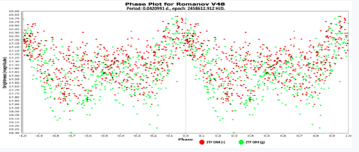
I discovered the probable nova in M31 named AT 2022ouu = PNJ J00423928+4115169: I studied the photographs obtained (after my requests) remotely using 0.61-m. public robotic telescope of the Burke-Gaffney Observatory (BGO) located in Halifax, Nova Scotia, Canada. Details: [2022TNSTR1975....1R](#).



Discoveries of variable stars using data mining: I discovered 80 variable stars (the first was [NSVS 3246176](#) in January 2016), most of them I found as a result of the analysis of photometric data from several sky surveys. In my paper [2021JAVSO...49..130R](#) I informed about the discovery (using ADQL) and research of eclipsing variable star Romanov V20.



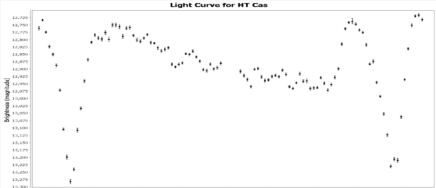
Another example: I found variable star Romanov V48, it may be an intermediate object between intermediate polars and polars, this is reported in the paper [2022arXiv220402598R](#). On the right: phased light curve (I created it based on the ZTF data; period = 0.0420991 d.).



My scientific observations using remote telescopes (located at different observatories, in different hemispheres of the Earth):

Cataclysmic variable stars: I remotely request time series of images of some cataclysmic variable stars during their outbursts, then I do the photometric measurements (including for study the amplitudes and periods of superhumps), I send data to the AAVSO and VSNET. Examples:

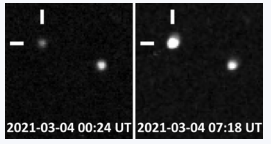
On the right there is V-band light curve of eclipsing UGSSU-type dwarf nova HT Cas based on images obtained (at my request) on 2021 June 11, remotely at 0.355-m. telescope of Abbey Ridge Observatory, Canada (the owner of the observatory David J. Lane gave me permission for such imaging).



On the left: light curve showing superhumps of variable star PNJ J03022732+1917552 = AT 2021afpi (WZ Sge-type dwarf nova having the largest outburst amplitude) based on my measurements from unfiltered images taken at Abbey Ridge Observatory (ARO) during 3 hours on the night of January 4/5, 2022.



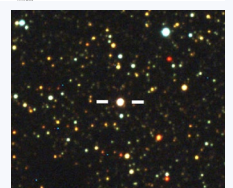
On March 4, 2021, I detected the rebrightening (during echo outburst) of cataclysmic variable star ASASSN-21au. 1st photo was taken at the ARO (mag.= 16.1 V), 2nd photo was taken almost 7 hours later at BGO (mag.= 14.19 V). Based on my observations, I became a co-author of the paper [2022ApJ...926..10R](#).



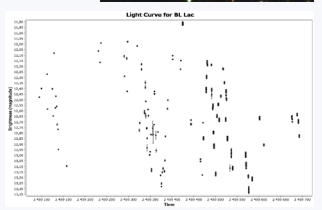
I detected re-appearance of optical flickering of RS Oph between March 30 and April 3, 2022, according to my photometric data from photographs obtained on the BGO telescope with Johnson B filter. I described it in the [ATel #15339](#).



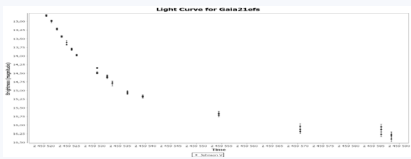
I also make follow-up observations (CCD and DSLR) of bright novae that appear on the CBAT "Transient Objects Confirmation Page", some of my photometric data are published in the Central Bureau Electronic Telegrams. Examples: novae [V1405 Cas](#) and [V1674 Her](#). Results of my recent observations of novae PGIR22gjh, U Sco and FQ Cir (right photo; was taken using iTelescope.Net, from where I was provided with some complimentary points for imaging) were published in the [ATel #15511](#).



Observations of blazars: I regularly observe some blazars, for example, on the right there is Rc light curve of BL Lac from September 2020 to April 2022 according to the results of my measurements from photographs obtained remotely at the telescopes of BGO and ARO. For some bright states of blazars, I wrote the ATels: [#14467](#) «New peak of brightness of BL Lacertae» and [#15399](#) «Follow-up optical photometry of flaring blazars S4 0954+65 and 1308+326 (AU CVn)».

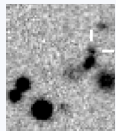


Microlensing events: I took photometric measurements of several of these events, such as Gaia21efs: I observed it remotely using the ARO telescope with V, B, Rc and Ic filters. My V-band light curve shown on the right (November 2021 - January 2022).

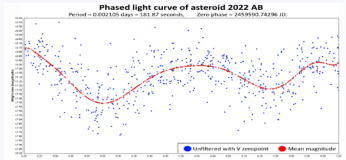


Also in the [ATel #14977](#) I presented my predisccovery photometric observations of the M33 microlensing event candidate AT 2021abdj from the images taken with the BGO telescope.

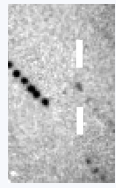
Optical afterglows of gamma-ray bursts: I track information and make photometric measurements of them. I publish the results of my observations (brightness and positions) in the circulars of the Gamma-ray Coordinates Network (GCN). Examples: GRB 191221B [2019GCN.26565....1R](#) (image shown on the right) and GRB 210306A [2021GCN.29599....1R](#).



Photometry of asteroid: in January 2022, remotely using the telescopes of ARO and BGO, I observed 2022 AB: fast rotating near-Earth asteroid. I made the phased light curve (using my photometric data from the ARO images) with period = 181.87 sec.; the paper is in preparation.

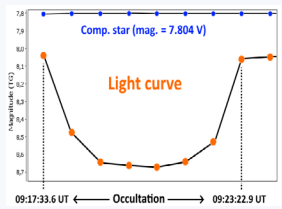


Astrometric observations of asteroids and comets: I confirm with my astrometric data the objects that are posted at the Confirmation Pages (NEO and PCCP) of the Minor Planet Center: asteroids (example: the first Vatira asteroid 2020 AV2 [2020MPEC....A...99B](#) - the photo taken using iTelescope T21 on January 8, 2020, is presented on the right) and comets (example: C/2021 A1 (Leonard) [2021MPEC....A...99L](#)), for some of which I also measure the diameter of the coma, the position angle and length of the tail.



In November 2021, I took part in the timing campaign for asteroid 2019 XS organized by the International Asteroid Warning Network: I made astrometric measurements using ARO telescope. The results of this have been published in the paper [2022PSJ....3..156F](#). I also contributed to the recoveries of comets P/2006 W1 = 2019 U1 (Gibbs) [2019MPEC...U..163B](#) and P/2007 R4 = P/2021 U2 (Garradd): details in the [CBET 5061](#).

Observations of occultations: on 2016-09-01, when I still had the opportunity to live in my room in communal apartment in Moscow, I photographed the occultation of TYC 6349-00855-1 by asteroid (159) Aemilia through my 200-mm telescope. Now I can only observe at remote telescopes, for example, I photographed the occultation of SAO 164648 by Titan on 2022 July 9 at iTelescope T68 (near Mayhill, USA), my light curve is shown on the right.



Visual observations: I contribute to the science also through my visual observations, for example, I regularly submitted my observations of sunspots to the AAVSO; since 2013, I have been regularly observing meteor showers visually (I estimate the brightness and direction of meteors, detect time) and send data to the International Meteor Organization, reports are available [in my profile](#). In my paper [2021JIMO...49..158R](#) I reported my visual and photographic (using DSLR camera) observations of the Geminids for different years.

I hope to make more of my contribution to the science in future years.