

Highly Cited Articles. 20
Articles from Russian Journals.

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At a recent conference held at Yale University, we reported on a study of citation characteristics of Russian journals.¹ That study will in due time be published and reprinted here.

As a by-product of that study we have identified Russian journal articles most highly-cited during the period 1961-1972. A list of the top fifty follows.

The list differs from other highly-cited articles lists we have published in more ways than merely the native language of the authors. Even though we did not confine ourselves to a particular scientific discipline, the list, with few exceptions, is exclusively physics and mathematical physics. One exception is a 'method' paper by Spirin, an internationally known biochemist, concerning spectrophotometric analysis of nucleic acids (item 13). The other exceptions are Palm's paper on structure and reactivity of organic compounds (item 32), and the two Shpolskii papers on organic spectra that were published in a physics journal (items 25 and 40).

In most lists of this type, method articles tend to make up a respectable part of the whole. In this case, the papers are mainly theoretical.

One journal accounts for twenty-nine of the fifty papers: the justly famous *Zhurnal Eksperimentalnoi i Teoreticheskoi Fiziki* (Soviet Physics JETP). The *Uspekhi Fizicheskikh Nauk* (Soviet Physics Uspekhi) accounts for eight articles; the *Fizika Tverdogo Tela* (Soviet Physics Solid State) and *Journal of Physics of the USSR* (no longer published) each account for three; the *Physikalische Zeitschrift der Sowjetunion* (no longer published) for two; and the following for one each: *Atomnaya Energiya* (Soviet Atomic Energy), *Biokhimiya*, (Biochemistry USSR), *Doklady Akademii Nauk SSSR*, *Uspekhi Khimii* (Russian Chemical Reviews), *Yadernaya Fizika* (Soviet Journal of Nuclear Physics).

Most of the articles (29) were published in the 1960s. Fifteen appeared in the 50s, and six even earlier.

In making this list, we have combined counts of citations to Russian originals and translations. You may wonder how large a part translations played in these citation records. This would be impossible to determine without querying almost every citing author, excluding the Russians of course. Most translated articles cite the original. In addition, as many readers know, translation journals of the American Institute of Physics, and some others, give both a 'Russian' citation and a 'translation' citation when citing other translated Russian papers. Who knows when a Western author has really read only an English abstract or translation that gives the original citation? Which citation--translation or original--any particular author should have given cannot always have been the one he actually gave. Too many times an author uses an abstract or translation and, with a mistaken idea of bibliographical obligation and integrity, cites the original.

Perhaps it is significant that these articles, with few exceptions, appeared both in Russian and in English. The exceptions appeared first in English, though undoubtedly they must since have been translated into Russian. It is outlandish to suggest that Landau's Nobel Prize might have been delayed even further had he published exclusively in Russian?

I have previously argued that it would be better if Soviet scientists published in English rather than in Russian.²

The Soviet Academy may not agree with me today, but at one time it did. Items 1 and 2, for example, were published in the Academy's journal *Physikalische Zeitschrift der Sowjetunion*. That journal accepted articles in English as well as German. Items 4, 5, and 6 were published in the *Journal of Physics of the USSR*, a journal primarily if not wholly in English. It also was published by the Soviet Academy.

The list of articles which follows excludes highly cited articles by Soviet scientists that may have been published in Western journals. Such will turn up in later studies.

1. Garfield E. Journal Citation studies. 22. Russian journal references and citations in the *Science Citation Index*® data bank. Paper presented at the US/USSR Symposium on Forecasting Information Requirements and Services, Yale University, New Haven, Conn., 20-23 October 1975.
2. Does the quality of Soviet science justify double coverage in *CC*®? The copyright controversy calls for reappraisal! *Current Contents*® (CC®) No. 52, 26 December 1973, p. 5-8.

Highly Cited Articles from Russian Journals 1961-1972

The articles are arranged by year of publication, and within year by journal title. Two citation counts are given. The first is the total count for the period 1961-1972. The second is the count for the two years 1973-1974. This second count, included to reveal the vitality of these papers, is *not* included in the first.

	Times cited 1961-1972	↓	Times cited 1973-1974	
1.	134	↓	36	Landau L & Lifshitz E. Theory of the dispersion of magnetic permeability in ferromagnetic bodies. <i>Phys. Zschr. Sowjetunion</i> 8:153-69, 1935.
2.	156	↓	36	Landau L & Teller E. Theory of sound dispersion. <i>Phys. Zschr. Sowjetunion</i> 10:34-43, 1936.
3.	82	↓	20	Davydov B I. On the theory of motion of electrons in gases and in semiconductors. <i>Zh. Eksp. Teoret. Fiz.</i> 7:1069-89, 1937.
4.	154	↓	44	Landau L D. The theory of superfluidity of helium III. <i>J. Physics USSR</i> 5:71-90, 1941.
5.	315	↓	29	Landau L. On the vibrations of the electronic plasma. <i>J. Physics USSR</i> 10:25-34, 1946.
6.	147	↓	43	Bogolyubov N N. On the theory of superfluidity. <i>J. Physics USSR</i> 11:23-32, 1947.
7.	338	↓	53	Ginzburg V L. On the theory of superconductivity. <i>Zh. Eksp. Teoret. Fiz.</i> 20:1064, 1950.
8.	262	↓	32	Lifshitz I M & Kosevich A M. Theory of magnetic susceptibility of metals at low temperatures. <i>Zh. Eksp. Teoret. Fiz.</i> 29:730-42, 1955. (<i>Sov. Phys. JETP</i> 2:636-45, 1956).
9.	119	↓	62	Landau L D. The theory of a Fermi liquid. <i>Zh. Eksp. Teoret. Fiz.</i> 30:1058-64, 1956. (<i>Sov. Phys. JETP</i> 3:920, 1956).
10.	170	↓	10	Lifshitz I M, Azbel M Ya & Kaganov M I. The theory of galvanomagnetic effects in metals. <i>Zh. Eksp. Teoret. Fiz.</i> 31:63-79, 1956. (<i>Sov. Phys. JETP</i> 4:41-54, 1957).
11.	137	↓	47	Landau L D. Oscillations in a Fermi liquid. <i>Zh. Eksp. Teoret. Fiz.</i> 32:59-66, 1957. (<i>Sov. Phys. JETP</i> 5:101-08, 1957).
12.	730	↓	90	Abrikosov A A. On the magnetic properties of superconductors of the second type. <i>Zh. Eksp. Teoret. Fiz.</i> 32:1442-52, 1957. (<i>Sov. Phys. JETP</i> 5:1174-82, 1957).
13.	174	↓	96	Spirin A S. Quantitative spectrophotometric determination of total nucleic acids. <i>Biokhimiya</i> 23:656-62, 1958.
14.	126	↓	28	Pomeranchuk I Y. Equality of the nucleon and antinucleon total interaction cross-section at high energies. <i>Zh. Eksp. Teoret. Fiz.</i> 34:725-28, 1958. (<i>Sov. Phys. JETP</i> 7:499-501, 1958).
15.	233	↓	46	Gorkov L P. On the energy spectrum of superconductors. <i>Zh. Eksp. Teoret. Fiz.</i> 34:735-39, 1958. (<i>Sov. Phys. JETP</i> 7:505-08, 1958).
16.	242	↓	47	Keldysh L V. Effect of a strong magnetic field on the optical properties of insulating crystals. <i>Zh. Eksp. Teoret. Fiz.</i> 34:1138-41, 1958. (<i>Sov. Phys. JETP</i> 7:788-90, 1958).
17.	207	↓	45	Migdal A B. Interaction between electrons and lattice vibrations in a normal metal. <i>Zh. Eksp. Teoret. Fiz.</i> 34:1438-46, 1958. (<i>Sov. Phys. JETP</i> 7:996-1001, 1958).
18.	152	↓	33	Bogolyubov N N & Tyabl'kov S V. Retarded and accelerated Green functions in statistical physics. <i>Doklady Akad. Nauk SSSR.</i> 126:53-56, 1959. (<i>Sov. Phys. Doklady</i> 4:589-93, 1959).
19.	266	↓	49	Gorkov L P. Microscopic derivation of the Ginzburg-Landau equations in the theory of superconductivity. <i>Zh. Eksp. Teoret. Fiz.</i> 36:1918-23, 1959. (<i>Sov. Phys. JETP</i> 9:1364-67, 1959).
20.	122	↓	15	Gorkov L P. Critical supercooling field in superconductivity theory. <i>Zh. Eksp. Teoret. Fiz.</i> 37:833-42, 1959. (<i>Sov. Phys. JETP</i> 10:593-99, 1960).
21.	266	↓	24	Gorkov L P. Theory of superconducting alloys in a strong magnetic field near the critical temperature. <i>Zh. Eksp. Teoret. Fiz.</i> 37:1407-16, 1959. (<i>Sov. Phys. JETP</i> 10:998-1004, 1960).

22. 122 56 **Ginzburg V L.** Some remarks on phase transitions of the second group and the microscopic theory of ferroelectric materials. *Fizika Tverdogo Tela* 2:2031-43, 1960. (*Sov. Phys. Solid State* 2:1824-34, 1960).
23. 183 47 **Ginzburg V L & Gurevich A V.** Nonlinear phenomena in a plasma located in an alternating electromagnetic field. *Uspekhi Fiz. Nauk* 70:201-46, 1960. (*Sov. Phys. Usp.* 3:115-46, 1960).
24. 891 253 **Zubarev D N.** Double-time Green functions in statistical physics. *Uspekhi Fiz. Nauk* 71:71-116, 1960. (*Sov. Phys. Usp.* 3:320-45, 1960).
25. 96 24 **Shpol'skii E V.** Line fluorescence of organic compounds and their applications. *Uspekhi Fiz. Nauk* 71:215-42, 1960. (*Sov. Phys. Usp.* 3:372-89, 1960).
26. 114 13 **Akhiezer A I, Baryakhtar V G & Kaganov M I.** Spin waves in ferromagnets and antiferromagnets. I. *Uspekhi Fiz. Nauk* 71:533-79, 1960. (*Sov. Phys. Usp.* 3:567-92, 1961).
27. 162 52 **Eliashberg G M.** Interactions between electrons and lattice vibrations in a superconductor. *Zh. Eksp. Teoret. Fiz.* 38:966-76, 1960. (*Sov. Phys. JETP* 11:696-702, 1960).
28. 571 205 **Faddeev L D.** Scattering theory for a three-particle system. *Zh. Eksp. Teoret. Fiz.* 39:1459-67, 1960. (*Sov. Phys. JETP* 12:1014-19, 1961).
29. 376 145 **Abrikosov A A & Gorkov L P.** Contribution to the theory of superconducting alloys with paramagnetic impurities. *Zh. Eksp. Teoret. Fiz.* 39:1781-96, 1960. (*Sov. Phys. JETP* 12:1243-53, 1961).
30. 87 23 **Fainberg Y B.** Interaction of charged-particle beams with plasma. *Atomnaya Energiya* 11:313-15, 1961. (*Sov. At. Energy* 11:958-79, 1962).
31. 87 16 **Vedenov A A, Velikhov E P & Sagdeev R Z.** Stability of plasma. *Uspekhi Fiz. Nauk* 73:701-66, 1961. (*Sov. Phys. Usp.* 4:332-69, 1961).
32. 128 17 **Palm V A.** Structure and reactivity of organic compounds; quantitative relationships. *Uspekhi Khimii* 30:1069-1123, 1961.
33. 97 30 **Gurevich V L & Firsov Yu A.** On the theory of the electrical conductivity of semiconductors in a magnetic field. I. *Zh. Eksp. Teoret. Fiz.* 40:198-213, 1961. (*Sov. Phys. JETP* 13:137, 1961).
34. 114 35 **Gurevich V L, Skobov V G & Firsov Yu. A.** Giant quantum oscillations in the acoustical absorption in a metal in a magnetic field. *Zh. Eksp. Teoret. Fiz.* 40:786-91, 1961. (*Sov. Phys. JETP* 13:552-55, 1961).
35. 90 10 **Kagan Y M & Maksimov L.** Transport phenomena in a paramagnetic gas. *Zh. Eksp. Teoret. Fiz.* 41:842-52, 1961. (*Sov. Phys. JETP* 14:604-10, 1962).
36. 154 60 **Provotorov B N.** Magnetic resonance saturation in crystals. *Zh. Eksp. Teoret. Fiz.* 41:1582-91, 1961. (*Sov. Phys. JETP* 14:1126, 1962).
37. 88 8 **Kagan Y M & Sosilevskii Ya A.** The Mossbauer effect for an impurity nucleus in a crystal. I. *Zh. Eksp. Teoret. Fiz.* 42:259-72, 1962. (*Sov. Phys. JETP* 15:182-89, 1962).
38. 149 30 **Askaryan G A.** Effects of the gradient of a strong electromagnetic beam on electrons and atoms. *Zh. Eksp. Teoret. Fiz.* 42:1567-70, 1962. (*Sov. Phys. JETP* 15:1088-90, 1962).
39. 110 22 **Ermolaev V L.** Energy transfer in organic systems involving the triplet state. III. Rigid solutions and crystals. *Uspekhi Fiz. Nauk* 80:3-40, 1963. (*Sov. Phys. Usp.* 6:333-58, 1963).
40. 126 34 **Shpol'skii E V.** New data on the nature of the quasilinear spectra of organic compounds. *Uspekhi Fiz. Nauk* 80:255, 1963. (*Sov. Phys. Usp.* 6:411-27, 1963).
41. 84 32 **Ochkur V I.** The Born-Oppenheimer method in the theory of atomic collisions. *Zh. Eksp. Teoret. Fiz.* 45:7434-41, 1963. (*Sov. Phys. JETP* 18:503-08, 1964).
42. 92 4 **Abrikosov A A.** Concerning surface superconductivity in strong magnetic fields. *Zh. Eksp. Teoret. Fiz.* 47:720-33, 1964. (*Sov. Phys. JETP* 20:480-88, 1965).

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44. 83 14 **Bonch-Bruевич V L & Kogan Sh M.** The formation of domains in semiconductors with negative differential resistance. *Fizika Tverdogo Tela* **7**:23-27, 1965. (*Sov. Phys. Solid State* **7**:15-17, 1965).
45. 177 92 **Silin V P.** Parametric resonance in a plasma. *Zh. Eksp. Teoret. Fiz.* **48**:1679-91, 1965. (*Sov. Phys. JETP* **21**:1127-34, 1965).
46. 134 76 **Akhmanov S A, Sukhorukov A P & Khokhlov R V.** Self-focusing and diffraction of light in a nonlinear medium. *Uspekhi Fiz. Nauk* **93**:19-70, 1967. (*Sov. Phys. Usp.* **10**:609-36, 1967).
47. 110 56 **Galeev A A & Sagdeev R Z.** Transport phenomena in a collisionless plasma in a toroidal magnetic system. *Zh. Eksp. Teoret. Fiz.* **53**:348-59, 1967. (*Sov. Phys. JETP* **26**:233-40, 1968).
48. 190 141 **Gribov V N.** A Reggeon diagram technique. *Zh. Eksp. Teoret. Fiz.* **53**:654-72, 1967. (*Sov. Phys. JETP* **26**:414-23, 1968).
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